

Survey on the Impact of GPS on the Surveying Sector

Introduction

RTI International is working with the National Institute of Standards and Technology (NIST) to conduct an economic impact assessment of the nation's precision, navigation, and timing (PNT) services provided through the Global Positioning System (GPS). The study has two objectives:

Quantify the economic impact of GPS.

Quantify the economic impact of an unexpected 30-day failure of the current GPS system.

As part of this study, RTI is soliciting your input to better understand the economic impact of GPS on the surveying industry. Your participation is voluntary and confidential; only aggregated information will be included in any deliverables or communications. Additionally, we do not wish to know any proprietary or confidential business information, but rather your professional opinion about the role of GPS in surveying. Our research products will be an economic analysis, final report, and presentation materials. All deliverables will be publicly available in early 2019 and these will be shared with you as soon as they are released.

If you have questions, please contact:

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Background on GPS

Validation: Must be numeric

ID: 2

1) How many years have you been in the surveying industry?

ID: 24

2) Are you a licensed surveyor?

Yes

No

Validation: Min = 0 Max = 100 Must be numeric

ID: 3

3) Please estimate the percentage of your time you spend on each type of surveying.

- _____ Cadastral
- _____ Topographic
- _____ Mapping
- _____ Hydrologic
- _____ Construction
- _____ Boundary
- _____ Other

Logic: Show/hidden trigger exists.

ID: 4

4) Do you use GPS technology when you do surveying?

- Yes
- No

Logic: Hidden unless: #4 Question "Do you use GPS technology when you do surveying?" is one of the following answers ("Yes")

ID: 26

5) How important is GPS to your job?

- Very unimportant
- Somewhat unimportant
- Neutral
- Somewhat important
- Very important

Logic: Hidden unless: #4 Question "Do you use GPS technology when you do surveying?" is one of the following answers ("Yes")

ID: 22

6) When did you adopt GPS technology for surveying for the first time?

- 1975
- 1976

- 1977
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- () 2018

Validation: Min = 0 Max = 100 Must be percentage

Logic: Hidden unless: #4 Question "Do you use GPS technology when you do surveying?" is one of the following answers ("Yes")

ID: 5

7) In what percentage of your jobs do you utilize GPS technology when you conduct surveying activities (not including using GPS for driving directions)?

ID: 6

8) For those jobs where you do not use GPS, why do you not use it? Select all that apply.

I do not have a line of sight to the sky.

It is not economically beneficial to me.

I don't know how to use GPS technology.

I don't need it to do my job.

Other: _____

N/A - I use GPS for all surveying jobs

Cost Structure of Surveying

We are now going to ask some questions regarding the cost structure of your surveying business. If you do not know the cost structure, please make your best guess.

ID: 27

9) Are you the owner or part-owner of a surveying business?

Yes

No

Validation: Min = 0 Max = 100 Must be numeric

ID: 7

10) Please estimate the percentage of surveying expenditures by the following cost categories.

_____ Labor (includes time and benefits to complete jobs, gather and analyze data, etc)

_____ Capital costs (office space and equipment, including GPS receivers, total stations, vehicles used for surveying work, other data gathering tools, etc.)

_____ Material costs (markers, stakes, batteries, etc.)

_____ Energy costs (including vehicle fuel, electricity)

_____ Professional liability insurance

_____ Other

Impacts of GPS on surveying

What are the primary impacts of GPS on the categories mentioned previously?

Use the slide bar to estimate how much GPS changes the amount of time that it takes a surveyor to complete the same job, compared to using traditional technologies (e.g. total stations) over the course of the last year.

A negative number means that GPS reduces the amount of time it takes to complete a job by that

percentage, and a positive number means that GPS increases the amount of time it takes to complete a job by that percentage. Zero means there is no change.

Validation: Min = -100 Max = 100

ID: 10

11) Labor

Includes labor time spent on both data acquisition and data analysis as well as other work. For example, if GPS allows you to complete the same job with one person that would take two people otherwise, set the slider to -50.

-100 _____ [] _____ 100

Validation: Min = -100 Max = 100

ID: 11

12) Capital

Includes expenditures on office space, vehicles, equipment, etc. For example, if you spend 50% more on capital with GPS than you did before you used GPS, set the slider to 50.

-100 _____ [] _____ 100

Validation: Min = -100 Max = 100

ID: 12

13) Materials

Includes stakes, markers, batteries, etc. For example, if you spend 25% less on materials using GPS than you would without it, set the slider to -25.

-100 _____ [] _____ 100

Validation: Min = -100 Max = 100

ID: 13

14) Energy

Includes fuel for vehicles, electricity for offices, etc. For example, if you drive 25% less on a project using GPS than you would for a project without GPS, set the slider to -25.

-100 _____ [] _____ 100

Logic: Show/hide trigger exists.

ID: 14

15) Does GPS enable you to complete jobs that would not have been possible without GPS?

Yes

No

Validation: Min = 0 Max = 100

Logic: Hidden unless: #15 Question "Does GPS enable you to complete jobs that would not have been possible without GPS?" is one of the following answers ("Yes")

ID: 15

16) What percentage of your revenue comes from jobs that would not have been possible to do without GPS?

0 _____ [] _____ 100

Impacts of a 30-day GPS Outage

This section of the survey will pose a series of questions about the potential impacts of a 30-day unexpected failure of the GPS system and how it would affect your work. You can assume that all of your GPS devices would not work during this time period, and that it occurs during a time of year when you have an average workload.

ID: 16

17) In the event of an unplanned GPS outage that lasted for thirty days, would you be able to continue conducting surveying work in any capacity?

Yes

No

Logic: Show/hide trigger exists.

ID: 17

18) Would an unplanned GPS outage have any impact on your work?

Yes

No

Logic: Show/hide trigger exists. Hidden unless: #18 Question "Would an unplanned GPS outage have any impact on your work?" is one of the following answers ("Yes")

ID: 18

19) What would be the primary impacts of a thirty day GPS outage? Select all that apply.

It would take longer to complete similar jobs.

I could not do certain jobs.

I could not compete for certain jobs.

Other: _____

Logic: Hidden unless: #18 Question "Would an unplanned GPS outage have any impact on your work?" is one of the following answers ("Yes")

ID: 28

20) What are the reasons that the GPS outage would impact your work? Select all that apply.

There is no way to complete certain jobs without GPS

I do not have the right equipment to survey without GPS

- It would take me too long to acquire the right equipment to survey without GPS
- I do not know how to survey without GPS
- It would take me a while to re-learn how to survey without GPS
- Other: _____

Validation: Must be percentage

Logic: Hidden unless: #19 Question "What would be the primary impacts of a thirty day GPS outage? Select all that apply." is one of the following answers ("It would take longer to complete similar jobs.")

ID: 19

21) How much longer, in percentage terms, would it take you to complete a typical job during a thirty day GPS outage?

Validation: Min = 0 Max = 100 Must be percentage

Logic: Hidden unless: #19 Question "What would be the primary impacts of a thirty day GPS outage? Select all that apply." is one of the following answers ("I could not do certain jobs.")

ID: 20

22) What percentage of jobs would you be unable to complete at all during a thirty day GPS outage?

Validation: Min = 0 Max = 100 Must be percentage

Logic: Hidden unless: #19 Question "What would be the primary impacts of a thirty day GPS outage? Select all that apply." is one of the following answers ("I could not compete for certain jobs.")

ID: 23

23) What percentage of jobs would you be unable to compete for during a thirty day GPS outage?

Final Thoughts

ID: 21

24) Is there anything else you would like to tell us about your work?

Thank You!

ID: 1

Thank you for taking our survey. Your response is very important to us.
