Geospatial Data &Geographic Information Systems and Smart Manufacturing

Ergebnisse

Umfrage 558491

Anzahl der Datensätze in dieser Abfrage:	28
Gesamtzahl der Datensätze dieser Umfrage:	28
Anteil in Prozent:	100.00%

Zusammenfassung für G03Q16

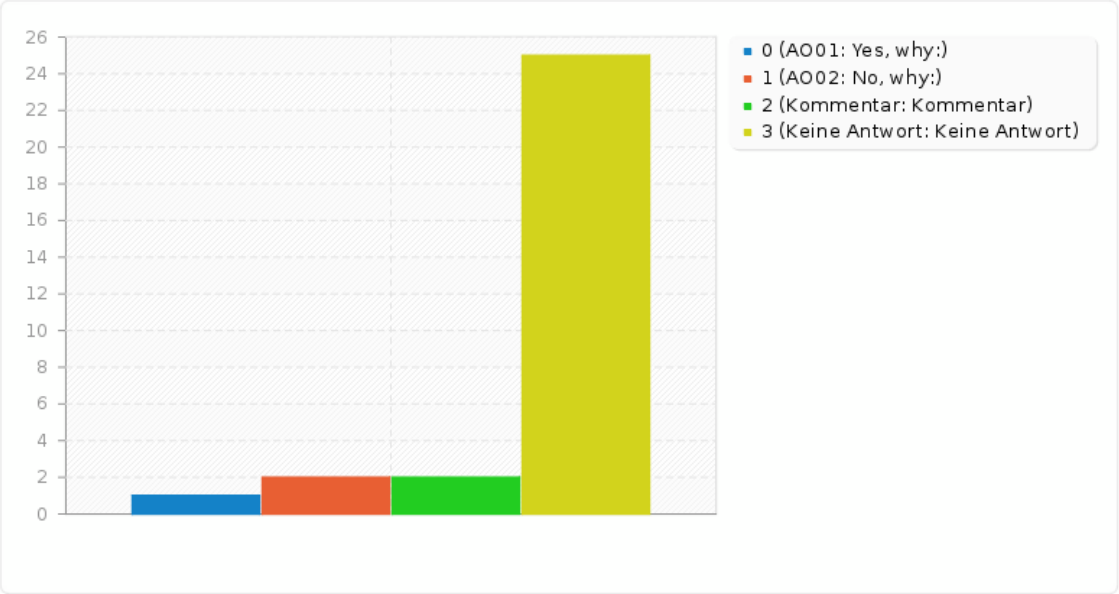
If Industry 4.0/Smart Manufacturing technologies are implemented in your organization, do the technologies meet your expectations, give reasons why?

Antwort	Anzahl	Prozent
Yes, why: (AO01)	1	3.57%
No, why: (AO02)	2	7.14%
Kommentar	2	7.14%
Keine Antwort	25	89.29%

ID	Antwort
19	to much heterogeneity
35	IT organizations are too slow to let teams adapt new technologies and give automated access to data sources. No Industry 4.0 solution is scalable if it takes humans clicking screens. Further, equipment is old, not "smart". In many areas we're still working to reach Industry 3.0. Further still, there is a lack of compelling Industry 4.0 problems to solve. E.g. leaders say, "We'd know a machine was going to fail before it did", but when was the last time a machine failure caused significant pain? Few can remember a time.

Zusammenfassung für G03Q16

If Industry 4.0/Smart Manufacturing technologies are implemented in your organization, do the technologies meet your expectations, give reasons why?



Zusammenfassung für G03Q17

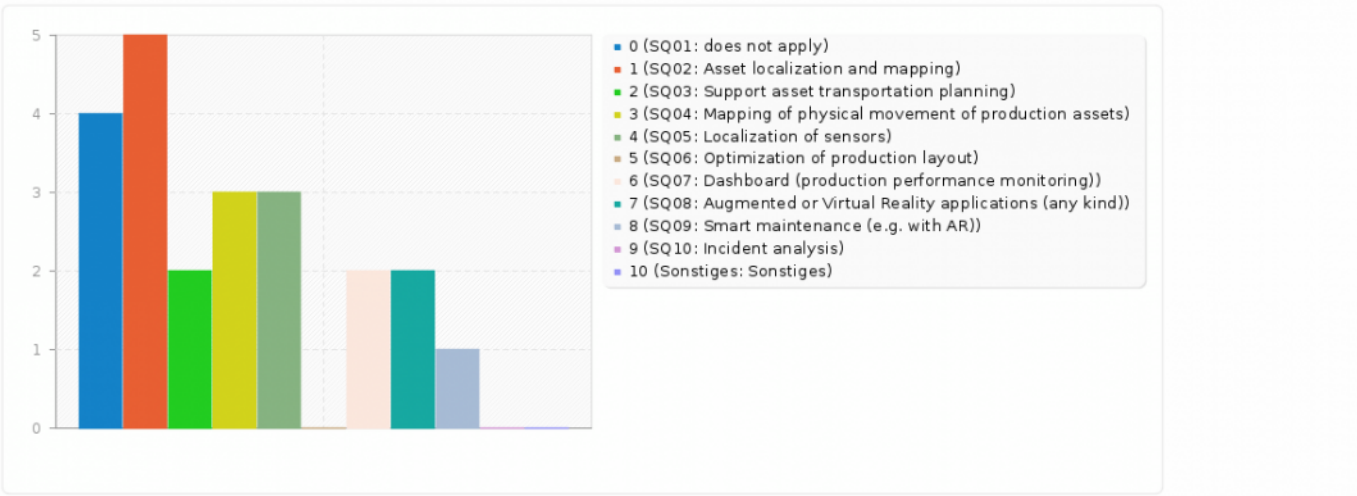
Do you use Industry 4.0 technologies in conjunction with Geographic Information Systems? Please indicate the purpose for which you use Industry 4.0 technologies with GIS. (Select all that apply)

Antwort	Anzahl	Prozent
does not apply (SQ01)	4	44.44%
Asset localization and mapping (SQ02)	5	55.56%
Support asset transportation planning (SQ03)	2	22.22%
Mapping of physical movement of production assets (SQ04)	3	33.33%
Localization of sensors (SQ05)	3	33.33%
Optimization of production layout (SQ06)	0	0.00%
Dashboard (production performance monitoring) (SQ07)	2	22.22%
Augmented or Virtual Reality applications (any kind) (SQ08)	2	22.22%
Smart maintenance (e.g. with AR) (SQ09)	1	11.11%
Incident analysis (SQ10)	0	0.00%
Sonstiges	0	0.00%

ID	Antwort

Zusammenfassung für G03Q17

Do you use Industry 4.0 technologies in conjunction with Geographic Information Systems? Please indicate the purpose for which you use Industry 4.0 technologies with GIS. (Select all that apply)



Zusammenfassung für G03Q15

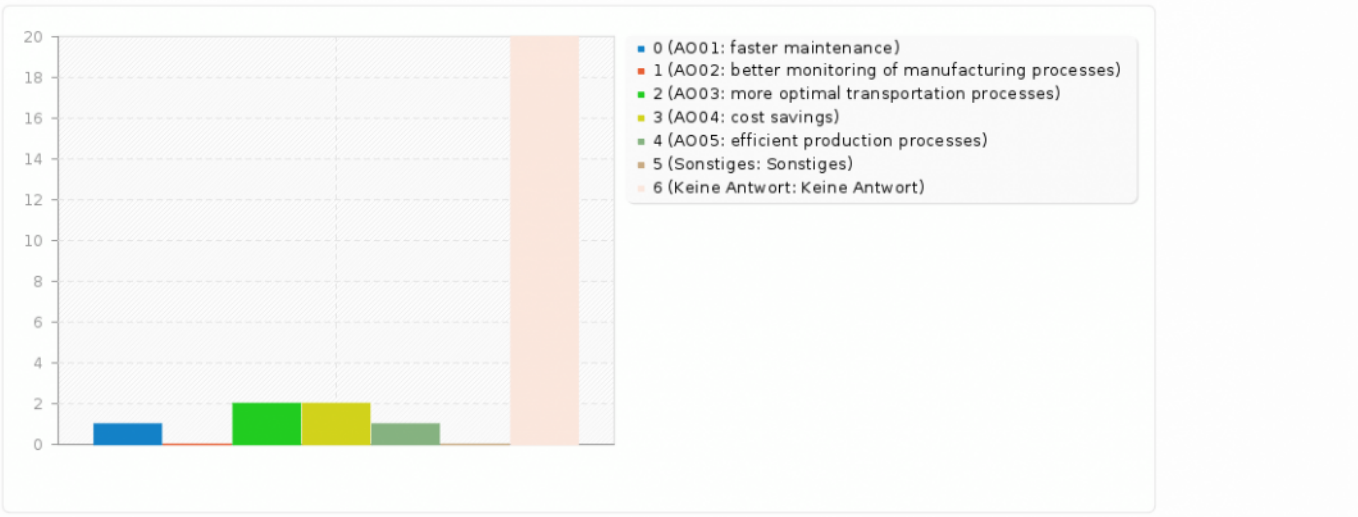
What was the primary reason you chose to or would implement these technologies? (Select one)

Antwort	Anzahl	Prozent
faster maintenance (AO01)	1	3.85%
better monitoring of manufacturing processes (AO02)	0	0.00%
more optimal transportation processes (AO03)	2	7.69%
cost savings (AO04)	2	7.69%
efficient production processes (AO05)	1	3.85%
Sonstiges	0	0.00%
Keine Antwort	20	76.92%

ID	Antwort
17	research
34	quality

Zusammenfassung für G03Q15

What was the primary reason you chose to or would implement these technologies? (Select one)



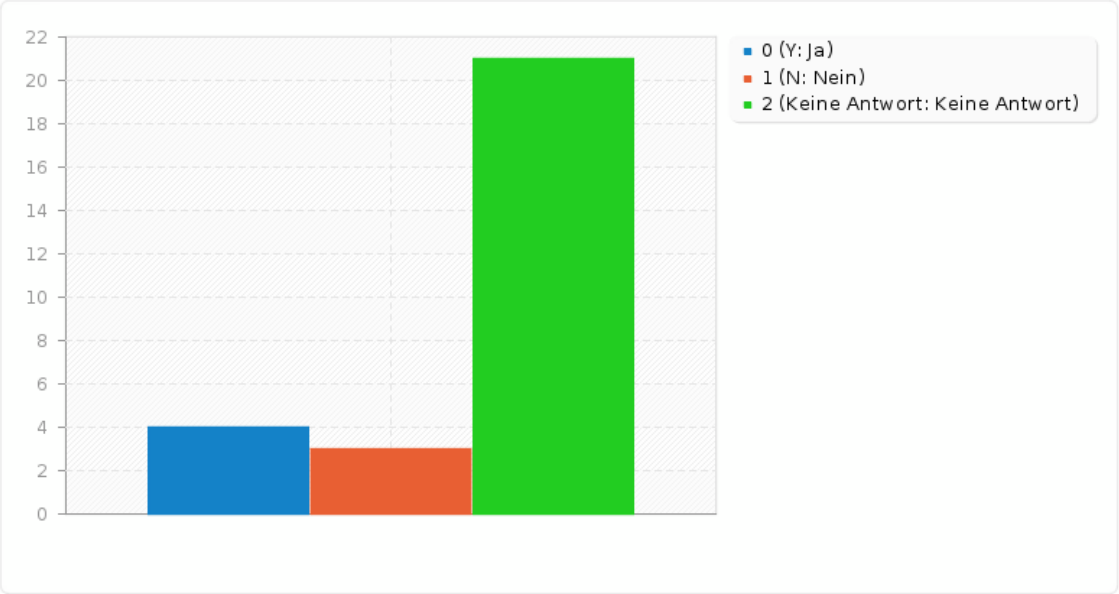
Zusammenfassung für G03Q14

Are Industry 4.0/Smart Manufacturing technologies implemented in your organization?

Antwort	Anzahl	Prozent
Ja (Y)	4	14.29%
Nein (N)	3	10.71%
Keine Antwort	21	75.00%

Zusammenfassung für G03Q14

Are Industry 4.0/Smart Manufacturing technologies implemented in your organization?



Zusammenfassung für G05Q22

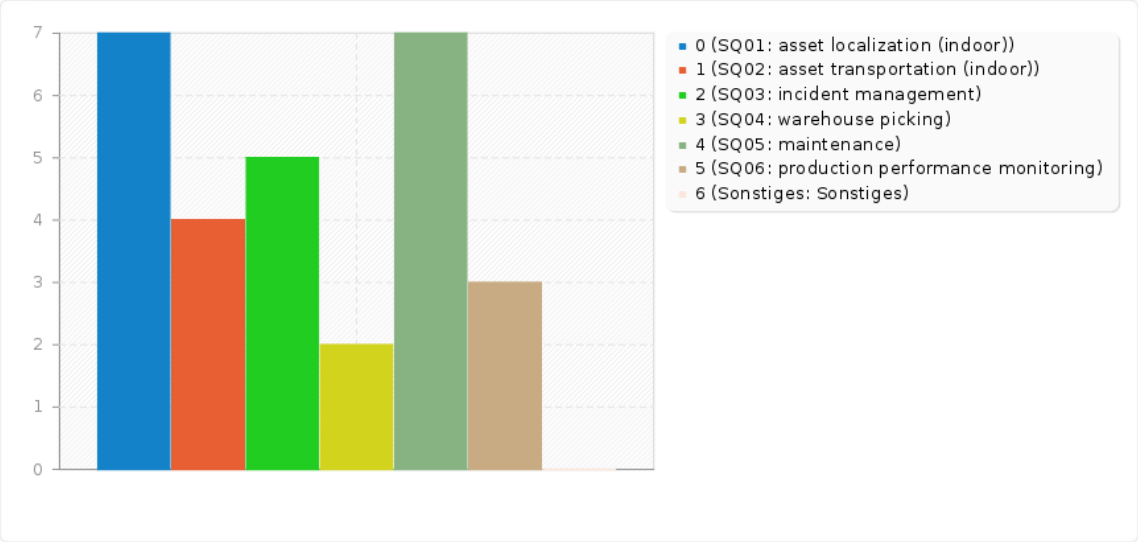
What use case does your organization consider to implement in future?

Antwort	Anzahl	Prozent
asset localization (indoor) (SQ01)	7	87.50%
asset transportation (indoor) (SQ02)	4	50.00%
incident management (SQ03)	5	62.50%
warehouse picking (SQ04)	2	25.00%
maintenance (SQ05)	7	87.50%
production performance monitoring (SQ06)	3	37.50%
Sonstiges	0	0.00%

ID	Antwort

Zusammenfassung für G05Q22

What use case does your organization consider to implement in future?



Zusammenfassung für G05Q23

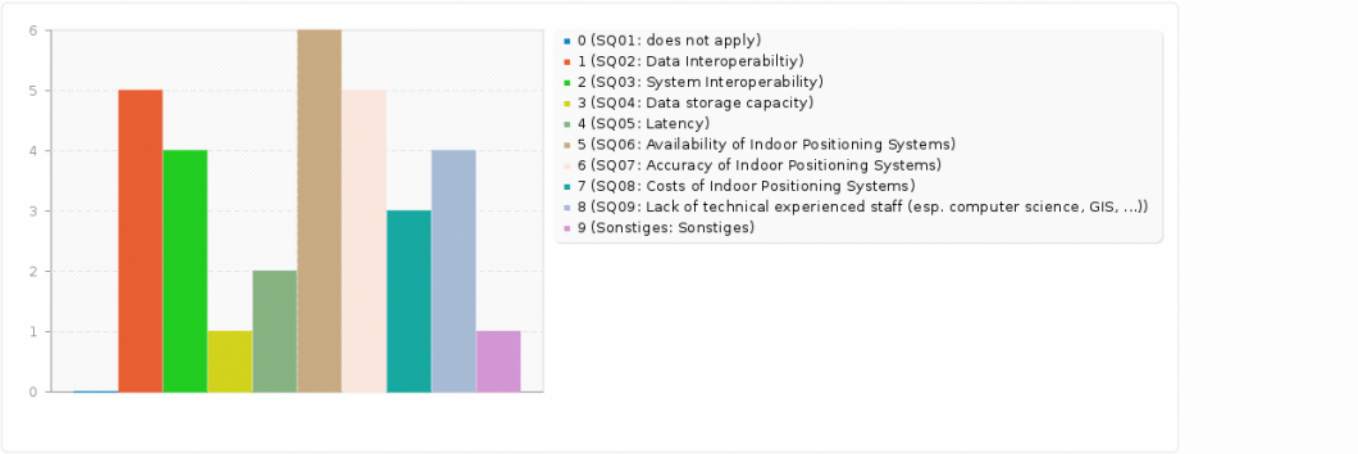
What are primary barriers (organizational/social/behavioral, technological, or ...) for transitioning from the current situation to the envisaged future state - with integrated Smart Manufacturing and Geographical Information Systems? (select all that apply)

Antwort	Anzahl	Prozent
does not apply (SQ01)	0	0.00%
Data Interoperabiltiy (SQ02)	5	62.50%
System Interoperability (SQ03)	4	50.00%
Data storage capacity (SQ04)	1	12.50%
Latency (SQ05)	2	25.00%
Availability of Indoor Positioning Systems (SQ06)	6	75.00%
Accuracy of Indoor Positioning Systems (SQ07)	5	62.50%
Costs of Indoor Positioning Systems (SQ08)	3	37.50%
Lack of technical experienced staff (esp. computer science, GIS, ...) (SQ09)	4	50.00%
Sonstiges	1	12.50%

ID	Antwort
35	IT cooperation

Zusammenfassung für G05Q23

What are primary barriers (organizational/social/behavioral, technological, or ...) for transitioning from the current situation to the envisaged future state - with integrated Smart Manufacturing and Geographical Information Systems? (select all that apply)



Zusammenfassung für G04Q17

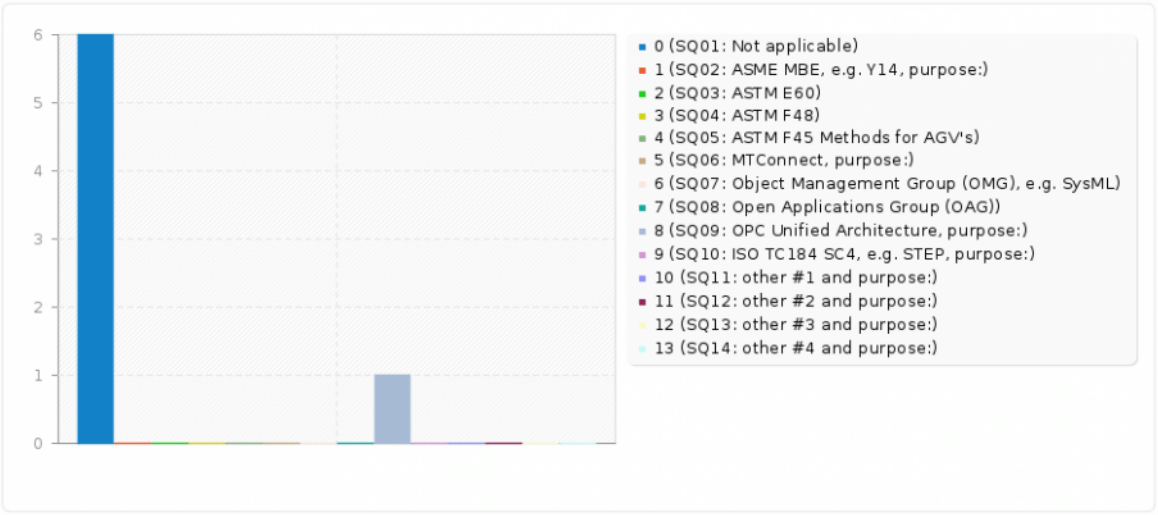
Which Smart Manufacturing standards are used in your organization? (Select all that apply)

Not applicable	**6**	**75.00%**
ASME MBE, e.g. Y14, purpose:	0	0.00%
ASTM E60	0	0.00%
ASTM F48	0	0.00%
ASTM F45 Methods for AGV's	0	0.00%
MTConnect, purpose:	0	0.00%
Object Management Group (OMG), e.g. SysML	0	0.00%
Open Applications Group (OAG)	0	0.00%
OPC Unified Architecture, purpose:	1	12.50%
ISO TC184 SC4, e.g. STEP, purpose:	0	0.00%
other #1 and purpose:	0	0.00%
other #2 and purpose:	0	0.00%
other #3 and purpose:	0	0.00%
other #4 and purpose:	0	0.00%

ID	**Antwort**
35	unsure
17	research

Zusammenfassung für G04Q17

Which Smart Manufacturing standards are used in your organization? (Select all that apply)



Zusammenfassung für G04Q18

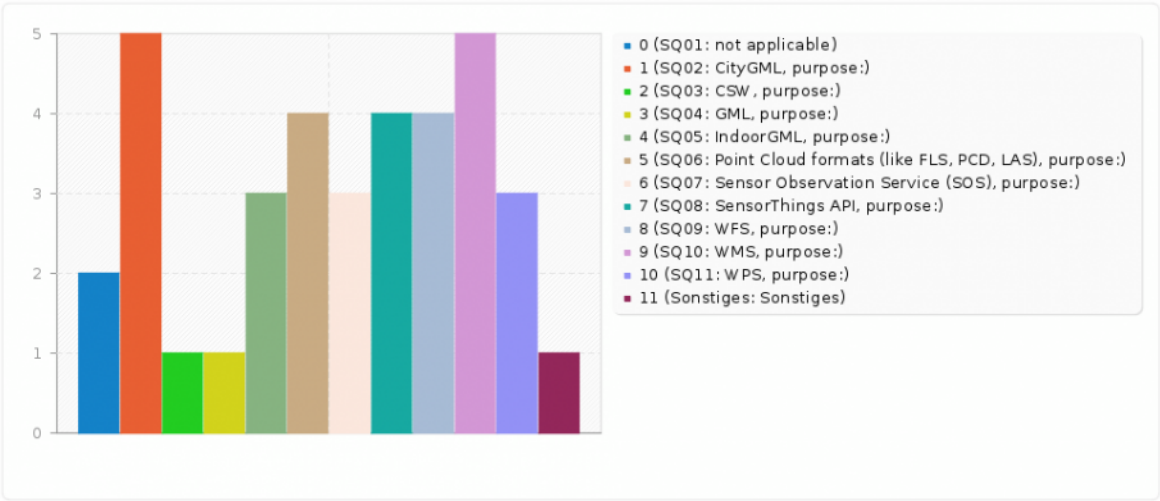
Which Geographic Information Systems standards are used in your organization and for which purpose (why)? Select all that apply. If you do not know how to answer this question, please click on "not applicable"!

not applicable	**2**	**25.00%**
CityGML, purpose:	5	62.50%
CSW, purpose:	1	12.50%
GML, purpose:	1	12.50%
IndoorGML, purpose:	3	37.50%
Point Cloud formats (like FLS, PCD, LAS), purpose:	4	50.00%
Sensor Observation Service (SOS), purpose:	3	37.50%
SensorThings API, purpose:	4	50.00%
WFS, purpose:	4	50.00%
WMS, purpose:	5	62.50%
WPS, purpose:	3	37.50%
Sonstiges	1	12.50%

ID	**Antwort**
35	unsure
17	research
19	using it
22	3D indoorGML
17	research
17	research
19	developing the standards
17	research
19	modeling of indoor
12	Sensor information storage and description for use of different sensors in combination
17	research
12	Sensor information storage and description for use of different sensors in combination
17	research
19	integration for Digital Twin
12	Sharing of geographical information of objects and layouts
17	research
12	Sharing of geographical information of objects and layouts
17	research
19	when extract data from repositories
17	research
17	research

Zusammenfassung für G04Q18

Which Geographic Information Systems standards are used in your organization and for which purpose (why)? Select all that apply. If you do not know how to answer this question, please click on "not applicable"!



Zusammenfassung für G04Q19 [Standard #1]

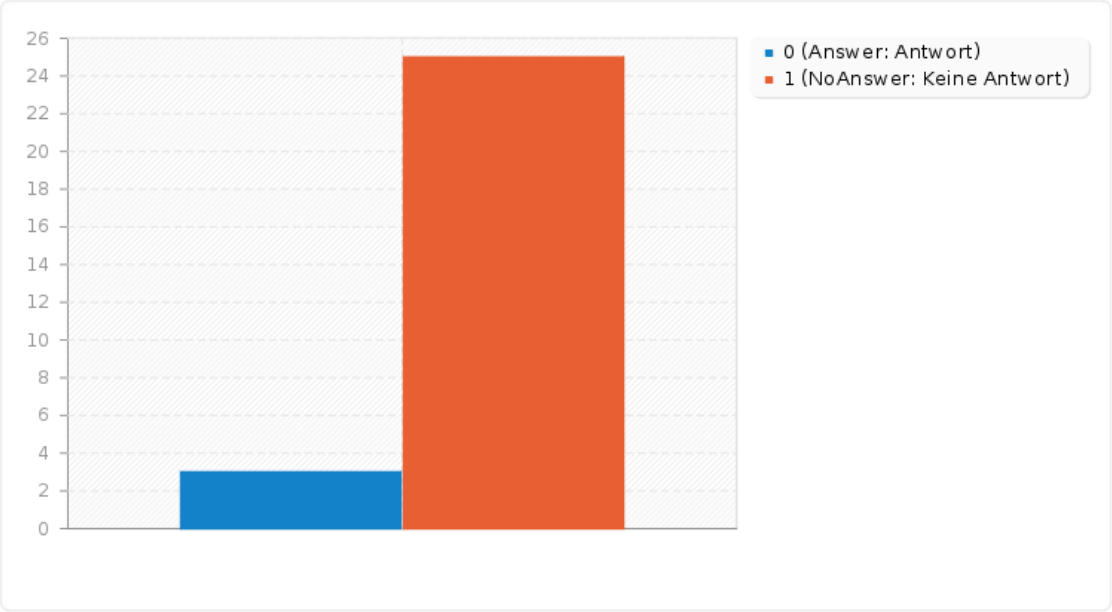
Name three standards in the field of smart manufacturing and/or Geographic Information Systems that are widely used and explain why.

Antwort	Anzahl	Prozent
Antwort	3	10.71%
Keine Antwort	25	89.29%

ID	Antwort
12	CityGML for building information and city information
17	IFC (building integration)
19	IndoorGML

Zusammenfassung für G04Q19 [Standard #1]

Name three standards in the field of smart manufacturing and/or Geographic Information Systems that are widely used and explain why.



Zusammenfassung für G04Q19 [Standard #2]

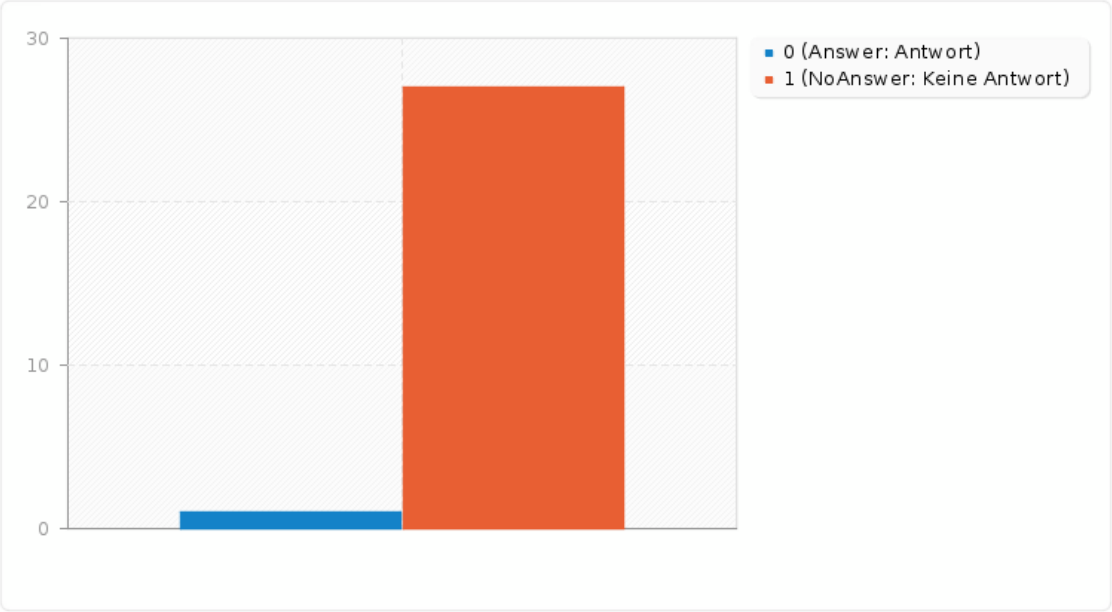
Name three standards in the field of smart manufacturing and/or Geographic Information Systems that are widely used and explain why.

Antwort	Anzahl	Prozent
Antwort	1	3.57%
Keine Antwort	27	96.43%

ID	Antwort
12	IFC for building information from architectural view in 3D

Zusammenfassung für G04Q19 [Standard #2]

Name three standards in the field of smart manufacturing and/or Geographic Information Systems that are widely used and explain why.



Zusammenfassung für G04Q19 [Standard #3]

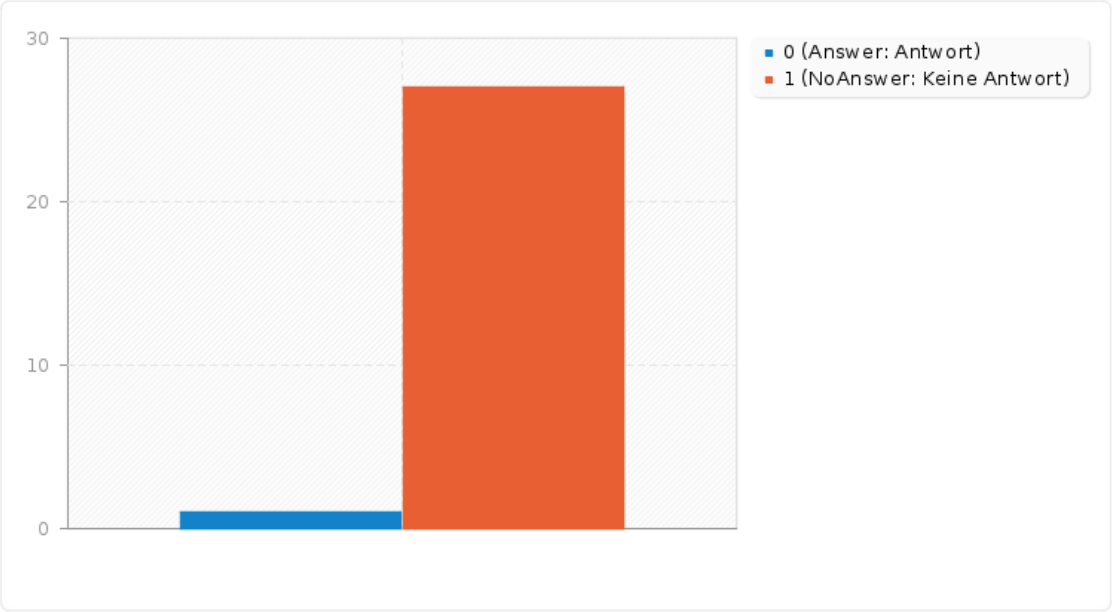
Name three standards in the field of smart manufacturing and/or Geographic Information Systems that are widely used and explain why.

Antwort	Anzahl	Prozent
Antwort	1	3.57%
Keine Antwort	27	96.43%

ID	Antwort
12	WMS for map/surrounding information

Zusammenfassung für G04Q19 [Standard #3]

Name three standards in the field of smart manufacturing and/or Geographic Information Systems that are widely used and explain why.



Zusammenfassung für G04Q20 [Standard #1]

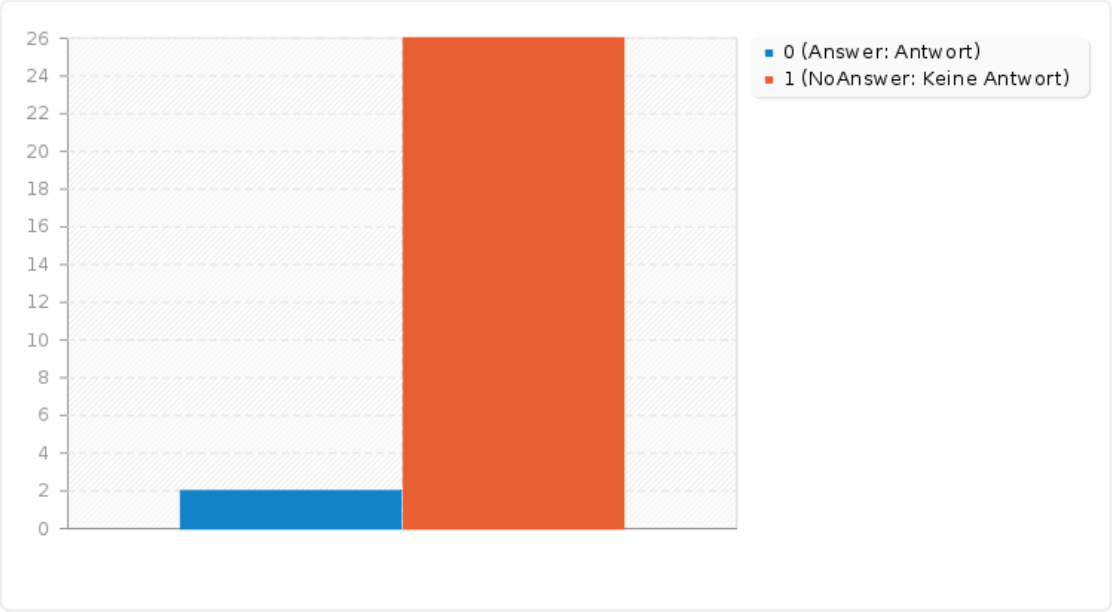
Name three standards in the field of smart manufacturing and/or Geographic Information Systems that are NOT used and explain why?

Antwort	Anzahl	Prozent
Antwort	2	7.14%
Keine Antwort	26	92.86%

ID	Antwort
17	IndoorGML
19	CityGML .. not much used here

Zusammenfassung für G04Q20 [Standard #1]

Name three standards in the field of smart manufacturing and/or Geographic Information Systems that are NOT used and explain why?



Zusammenfassung für G04Q20 [Standard #2]

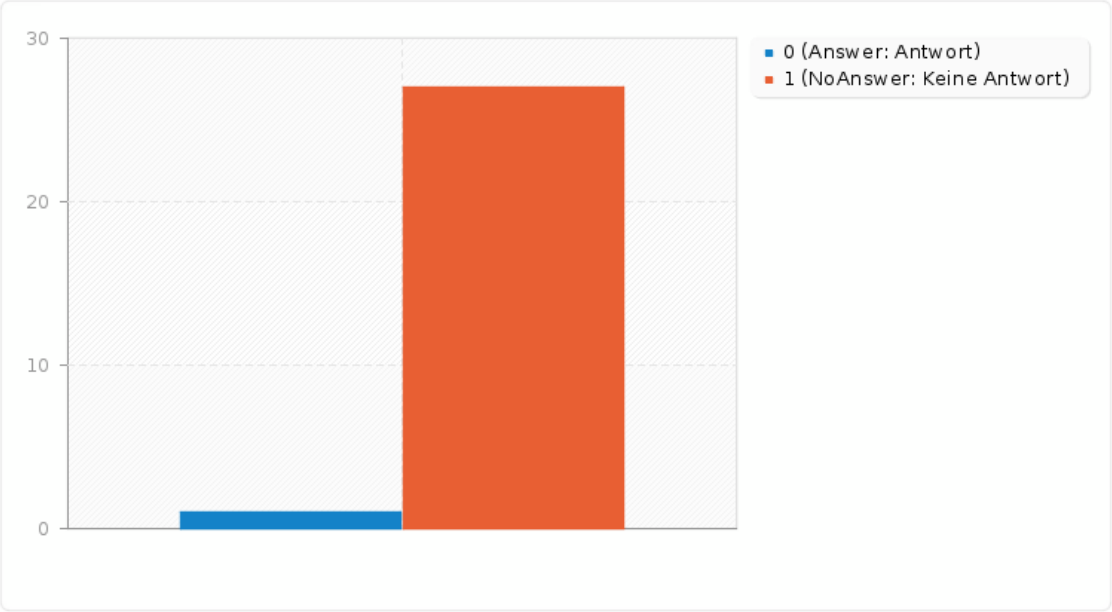
Name three standards in the field of smart manufacturing and/or Geographic Information Systems that are NOT used and explain why?

Antwort	Anzahl	Prozent
Antwort	1	3.57%
Keine Antwort	27	96.43%

ID	Antwort
19	IndoorGML still too new

Zusammenfassung für G04Q20 [Standard #2]

Name three standards in the field of smart manufacturing and/or Geographic Information Systems that are NOT used and explain why?



Zusammenfassung für G04Q20 [Standard #3]

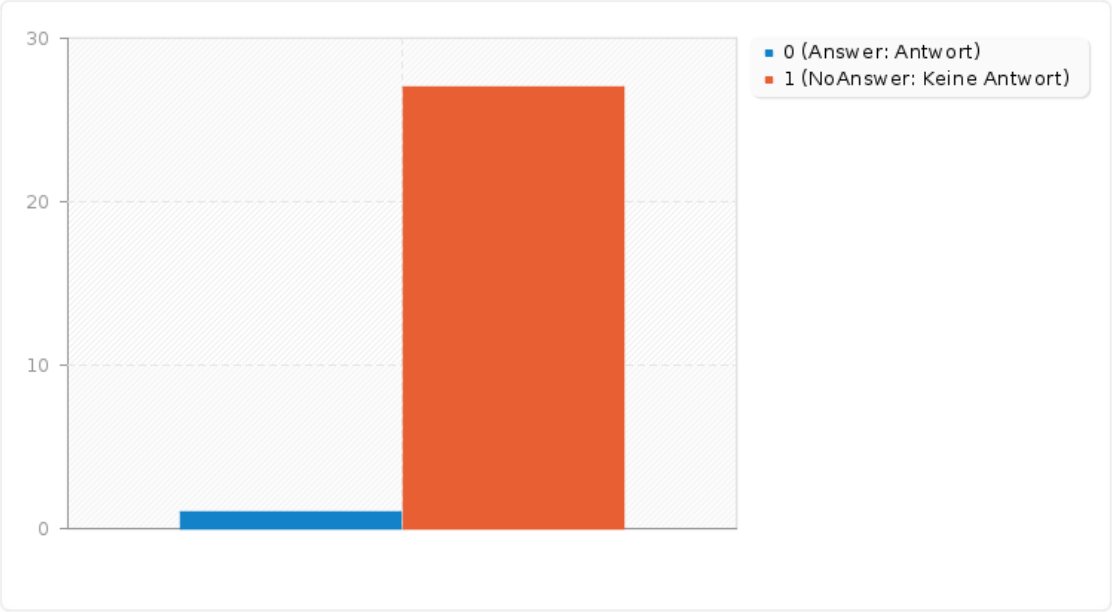
Name three standards in the field of smart manufacturing and/or Geographic Information Systems that are NOT used and explain why?

Antwort	Anzahl	Prozent
Antwort	1	3.57%
Keine Antwort	27	96.43%

ID	Antwort
19	WPS ... requires quite some developments

Zusammenfassung für G04Q20 [Standard #3]

Name three standards in the field of smart manufacturing and/or Geographic Information Systems that are NOT used and explain why?



Zusammenfassung für G04Q21

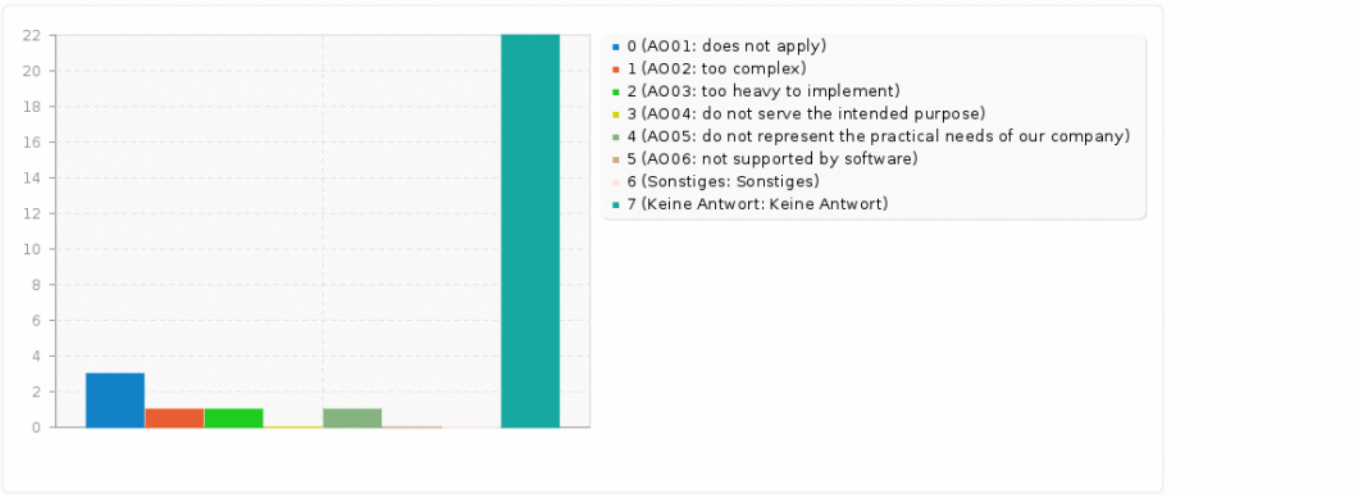
Why do you avoid using standards?

Antwort	Anzahl	Prozent
does not apply (AO01)	3	10.71%
too complex (AO02)	1	3.57%
too heavy to implement (AO03)	1	3.57%
do not serve the intended purpose (AO04)	0	0.00%
do not represent the practical needs of our company (AO05)	1	3.57%
not supported by software (AO06)	0	0.00%
Sonstiges	0	0.00%
Keine Antwort	22	78.57%

ID	Antwort

Zusammenfassung für G04Q21

Why do you avoid using standards?



Zusammenfassung für G01Q01

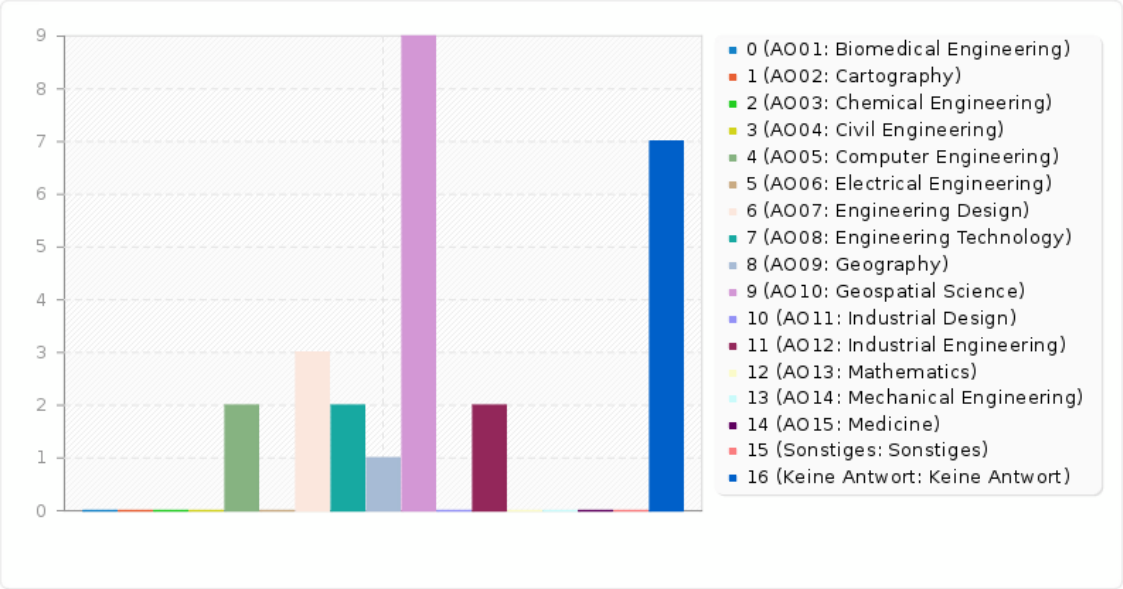
Select the discipline that best describes your background (please only one answer)

Antwort	Anzahl	Prozent
Biomedical Engineering (AO01)	0	0.00%
Cartography (AO02)	0	0.00%
Chemical Engineering (AO03)	0	0.00%
Civil Engineering (AO04)	0	0.00%
Computer Engineering (AO05)	2	7.69%
Electrical Engineering (AO06)	0	0.00%
Engineering Design (AO07)	3	11.54%
Engineering Technology (AO08)	2	7.69%
Geography (AO09)	1	3.85%
Geospatial Science (AO10)	9	34.62%
Industrial Design (AO11)	0	0.00%
Industrial Engineering (AO12)	2	7.69%
Mathematics (AO13)	0	0.00%
Mechanical Engineering (AO14)	0	0.00%
Medicine (AO15)	0	0.00%
Sonstiges	0	0.00%
Keine Antwort	7	26.92%

ID	Antwort
16	Technology Innovation Management
20	Urban Design

Zusammenfassung für G01Q01

Select the discipline that best describes your background (please only one answer)



Zusammenfassung für G01Q02

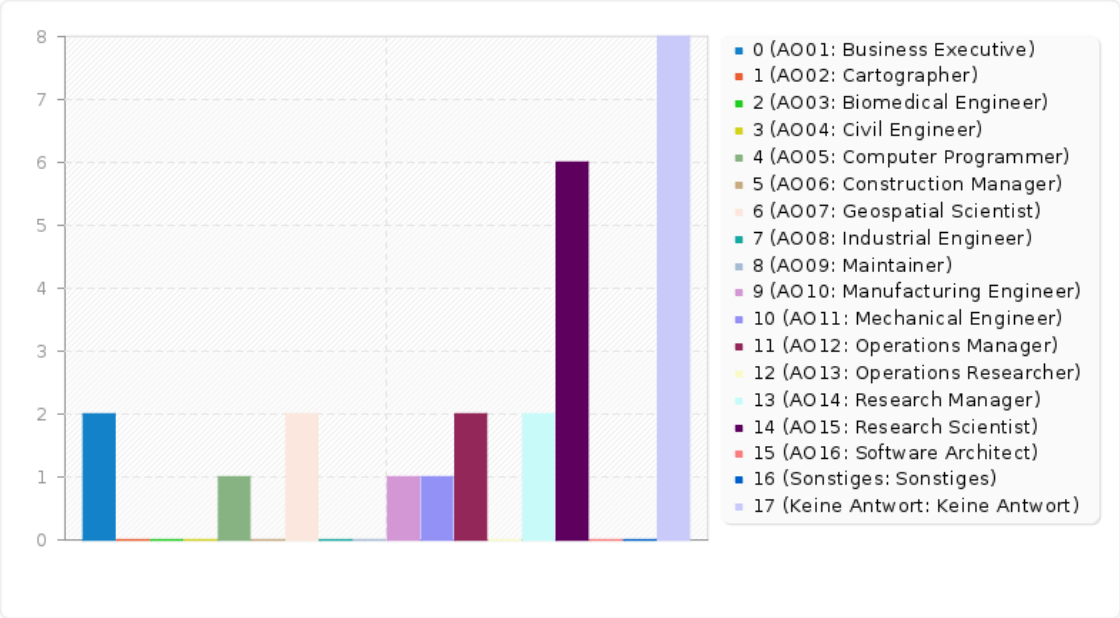
Select the job title that best describes your current role:

Antwort	Anzahl	Prozent
Business Executive (AO01)	2	8.00%
Cartographer (AO02)	0	0.00%
Biomedical Engineer (AO03)	0	0.00%
Civil Engineer (AO04)	0	0.00%
Computer Programmer (AO05)	1	4.00%
Construction Manager (AO06)	0	0.00%
Geospatial Scientist (AO07)	2	8.00%
Industrial Engineer (AO08)	0	0.00%
Maintainer (AO09)	0	0.00%
Manufacturing Engineer (AO10)	1	4.00%
Mechanical Engineer (AO11)	1	4.00%
Operations Manager (AO12)	2	8.00%
Operations Researcher (AO13)	0	0.00%
Research Manager (AO14)	2	8.00%
Research Scientist (AO15)	6	24.00%
Software Architect (AO16)	0	0.00%
Sonstiges	0	0.00%
Keine Antwort	8	32.00%

ID	Antwort
27	Innovation Consultant
28	Manager at Public Safety Answering Point
29	GIS-Expert in public administration

Zusammenfassung für G01Q02

Select the job title that best describes your current role:



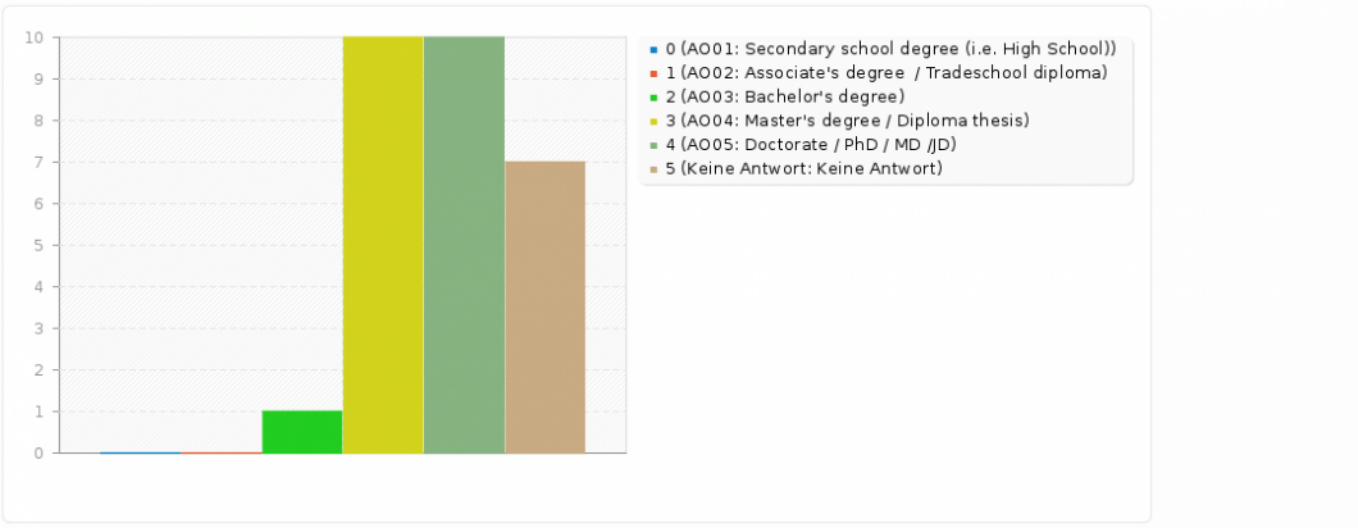
Zusammenfassung für G01Q03

Select your highest earned degree. If not listed, please select the closet equivalent level:

Antwort	Anzahl	Prozent
Secondary school degree (i.e. High School) (AO01)	0	0.00%
Associate's degree / Tradeschool diploma (AO02)	0	0.00%
Bachelor's degree (AO03)	1	3.57%
Master's degree / Diploma thesis (AO04)	10	35.71%
Doctorate / PhD / MD /JD (AO05)	10	35.71%
Keine Antwort	7	25.00%

Zusammenfassung für G01Q03

Select your highest earned degree. If not listed, please select the closet equivalent level:



Zusammenfassung für G01Q04

Fill in the demographic information. Your age:

Berechnung	Ergebnis
Anzahl	21
Summe	838.000000
Standard Abweichung	15.38
Durchschnitt	39.9
Minimum	2.000000
1ter Viertelwert (Q1 unteres Quartil)	30
2ter Viertelwert (Mittleres Quartil)	45
3ter Viertelwert (Q3 Oberes Quartil)	50
Maximum	62.000000

***Null-Werte werden in Berechnungen ausgelassen**
Q1 und Q3 werden berechnet durch die minitab-Methode

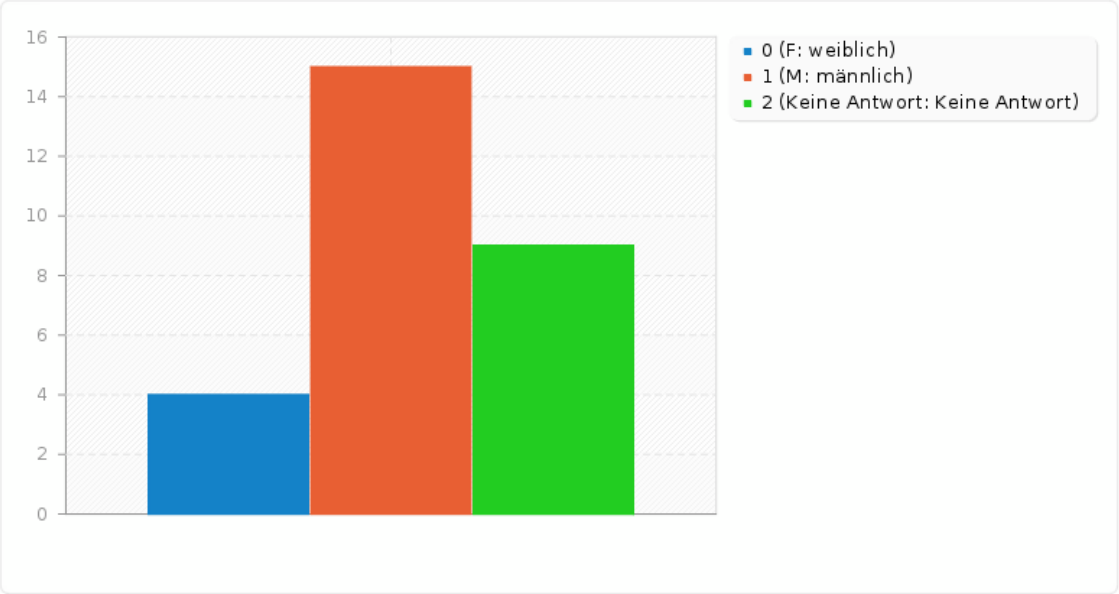
Zusammenfassung für G01Q05

Fill in the demographic information. Your gender:

Antwort	Anzahl	Prozent
weiblich (F)	4	14.29%
männlich (M)	15	53.57%
Keine Antwort	9	32.14%

Zusammenfassung für G01Q05

Fill in the demographic information. Your gender:



Zusammenfassung für G01Q06

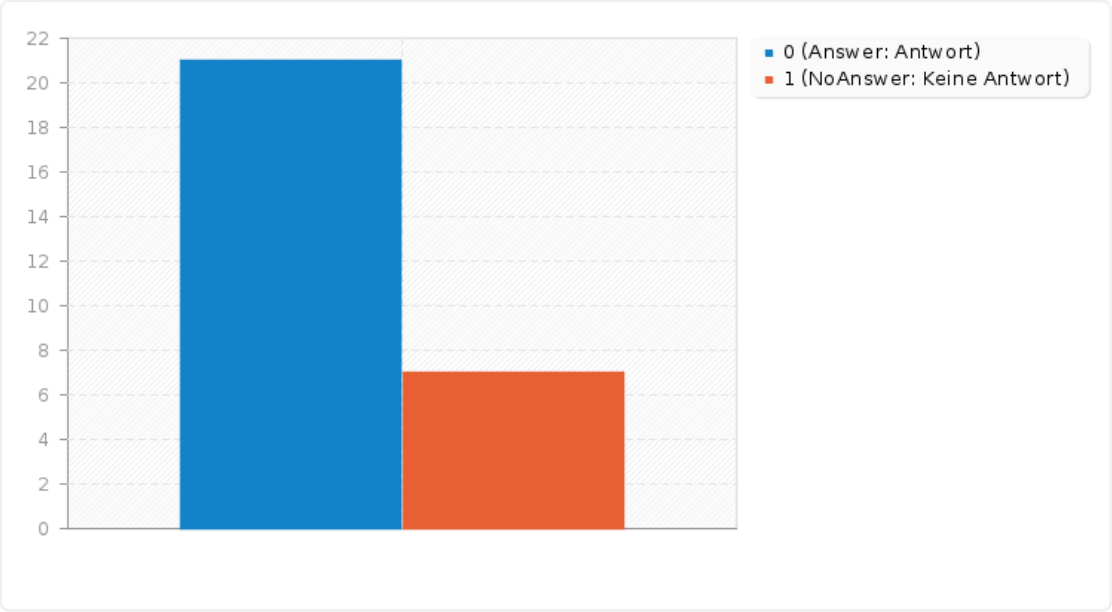
Fill in the demographic information. Your country of residence:

Antwort	Anzahl	Prozent
Antwort	21	75.00%
Keine Antwort	7	25.00%

ID	Antwort
9	Austria
11	USA
12	Austria
13	Austria
14	Austria
16	Austria
17	Austria
19	Australia
20	Australlia
21	Australia
22	UK
24	US
25	United States of America
27	Austria
28	Austria
29	Austria
30	Vienna
32	United States
33	Austria
34	USA
35	United States

Zusammenfassung für G01Q06

Fill in the demographic information. Your country of residence:



Zusammenfassung für G01Q07

Fill in the demographic information. Your years of Professional Experience:

Berechnung	Ergebnis
Anzahl	21
Summe	348.000000
Standard Abweichung	10.12
Durchschnitt	16.57
Minimum	2.000000
1ter Viertelwert (Q1 unteres Quartil)	7.5
2ter Viertelwert (Mittleres Quartil)	20
3ter Viertelwert (Q3 Oberes Quartil)	24
Maximum	36.000000

***Null-Werte werden in Berechnungen ausgelassen**
Q1 und Q3 werden berechnet durch die minitab-Methode

Zusammenfassung für G02Q08

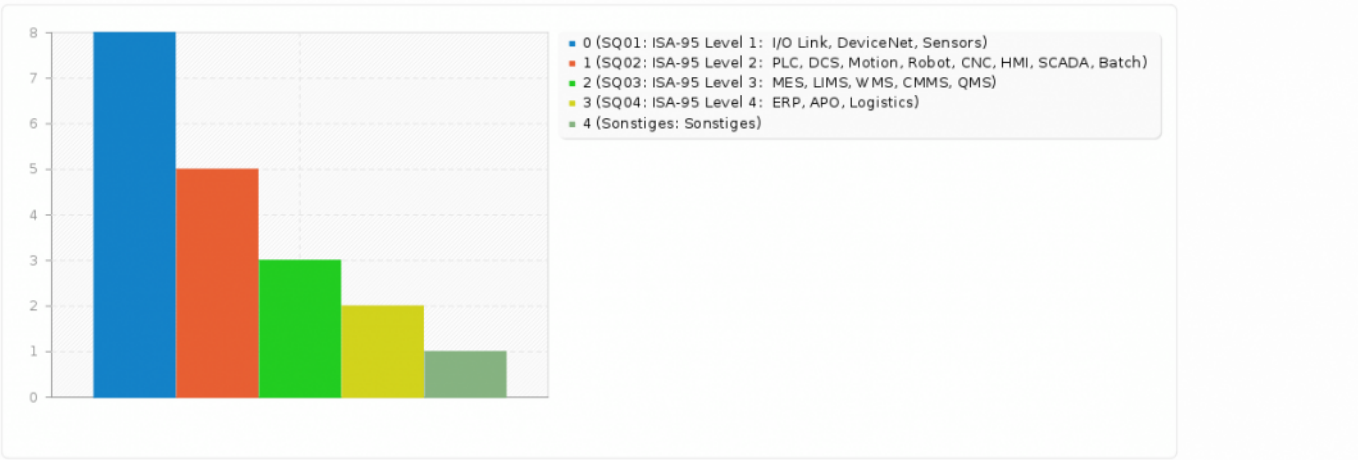
At what level, does your organization collect and store data from your manufacturing environment?(Select all that apply)

Antwort	Anzahl	Prozent
ISA-95 Level 1: I/O Link, DeviceNet, Sensors (SQ01)	8	72.73%
ISA-95 Level 2: PLC, DCS, Motion, Robot, CNC, HMI, SCADA, Batch (SQ02)	5	45.45%
ISA-95 Level 3: MES, LIMS, WMS, CMMS, QMS (SQ03)	3	27.27%
ISA-95 Level 4: ERP, APO, Logistics (SQ04)	2	18.18%
Sonstiges	1	9.09%

ID	Antwort
34	All of them

Zusammenfassung für G02Q08

At what level, does your organization collect and store data from your manufacturing environment?(Select all that apply)



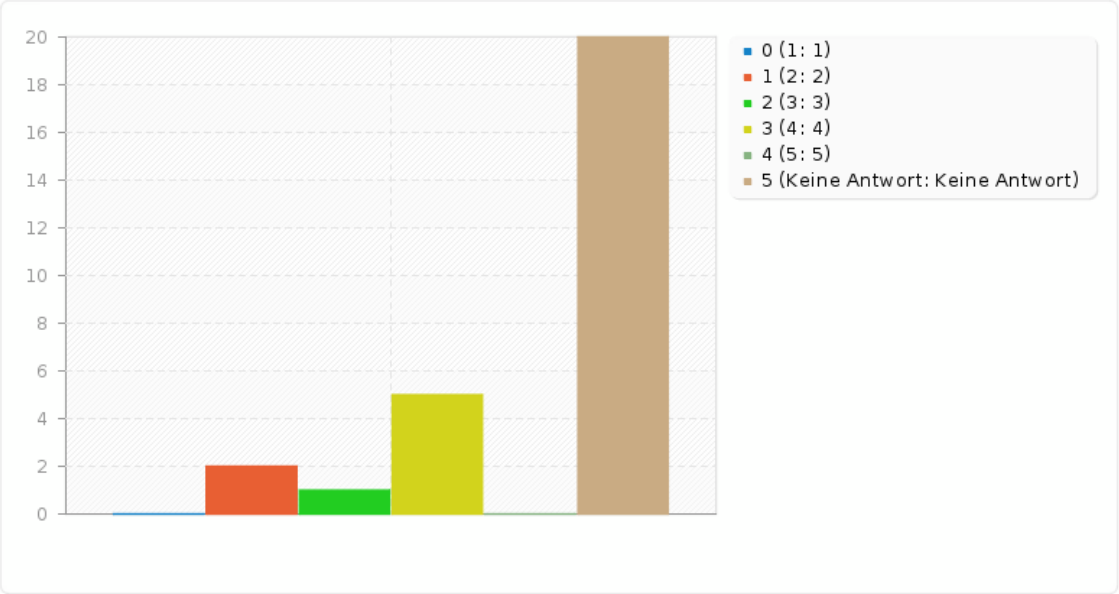
Zusammenfassung für G02Q09

How would you rate the quality of the data collected? (poor [1 star] - ideal [5 stars])

Antwort	Anzahl	Prozent	Summe
1 (1)	0	0.00%	25.00%
2 (2)	2	25.00%	
3 (3)	1	12.50%	12.50%
4 (4)	5	62.50%	
5 (5)	0	0.00%	62.50%
Keine Antwort	20	71.43%	0.00%
Arithmetisches Mittel	3.38		
Standard Abweichung	0.92		
Summe (Antworten)	8	100.00%	100.00%
Anzahl Fälle		0%	

Zusammenfassung für G02Q09

How would you rate the quality of the data collected? (poor [1 star] - ideal [5 stars])



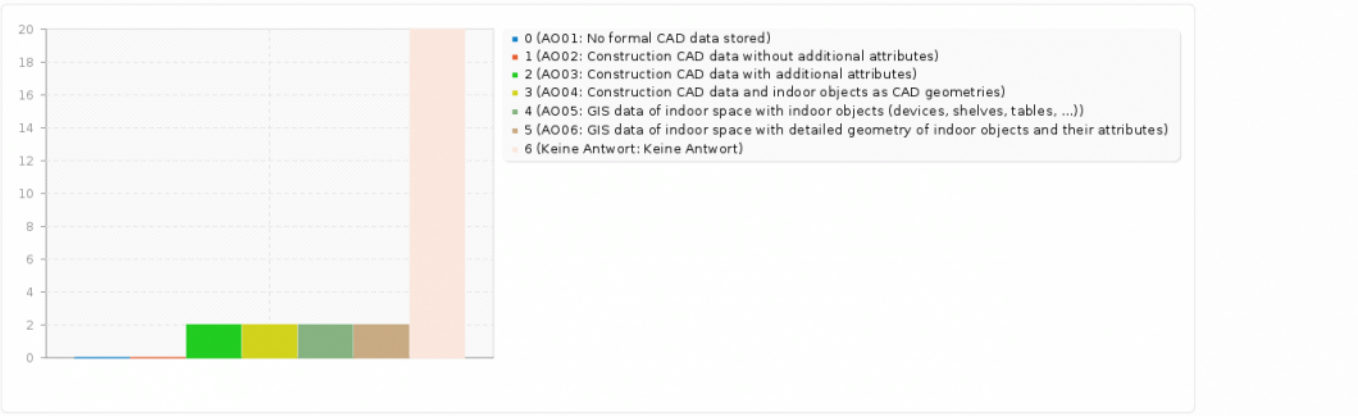
Zusammenfassung für G02Q10

Does your organization store/update a Computer-Aided Design (CAD) representation of the manufacturing facility itself? Select the description below that best fits your organization’s practice.

Antwort	Anzahl	Prozent
No formal CAD data stored (AO01)	0	0.00%
Construction CAD data without additional attributes (AO02)	0	0.00%
Construction CAD data with additional attributes (AO03)	2	7.14%
Construction CAD data and indoor objects as CAD geometries (AO04)	2	7.14%
GIS data of indoor space with indoor objects (devices, shelves, tables, ...) (AO05)	2	7.14%
GIS data of indoor space with detailed geometry of indoor objects and their attributes (AO06)	2	7.14%
Keine Antwort	20	71.43%

Zusammenfassung für G02Q10

Does your organization store/update a Computer-Aided Design (CAD) representation of the manufacturing facility itself? Select the description below that best fits your organization’s practice.



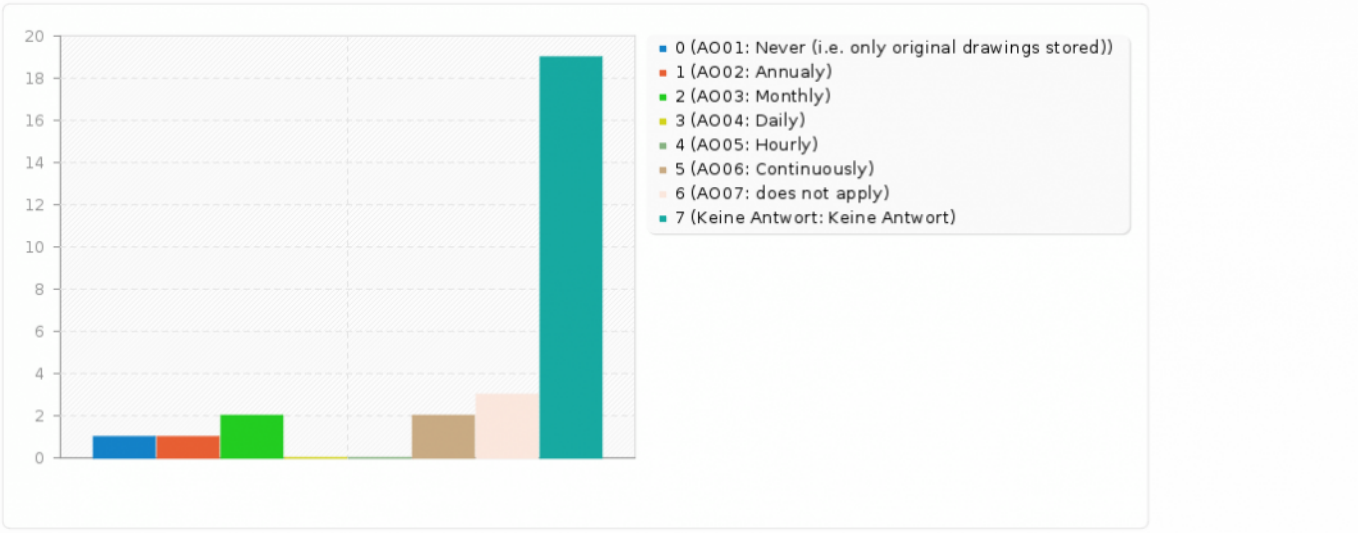
Zusammenfassung für G02Q11

How often does your organization update the CAD models of the facility?

Antwort	Anzahl	Prozent
Never (i.e. only original drawings stored) (AO01)	1	3.57%
Annualy (AO02)	1	3.57%
Monthly (AO03)	2	7.14%
Daily (AO04)	0	0.00%
Hourly (AO05)	0	0.00%
Continuously (AO06)	2	7.14%
does not apply (AO07)	3	10.71%
Keine Antwort	19	67.86%

Zusammenfassung für G02Q11

How often does your organization update the CAD models of the facility?



Zusammenfassung für G02Q12

How do you integrate Geospatial data and manufacturing data?

Antwort	Anzahl	Prozent
Using an exact position (i.e., XYZ coordinates) as an anchor (AO01)	8	30.77%
Using implicit device names (and the positions of the devices) as a basis (AO02)	0	0.00%
Using location names in the facility as anchor (AO03)	0	0.00%
Using temporal markers (e.g., timestamps) (AO04)	0	0.00%
Using camera feeds and approximately relating data to it (AO05)	0	0.00%
Sonstiges	0	0.00%
Keine Antwort	18	69.23%

ID	Antwort
34	depends, all of them apply
35	unsure

Zusammenfassung für G02Q12

How do you integrate Geospatial data and manufacturing data?