2019 SEND Survey Results
Fourth annual

Survey Team:
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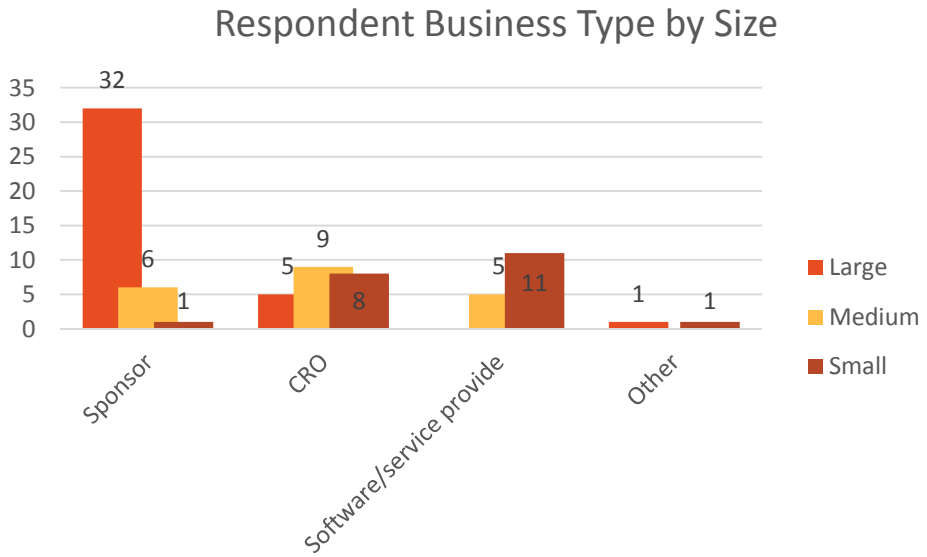
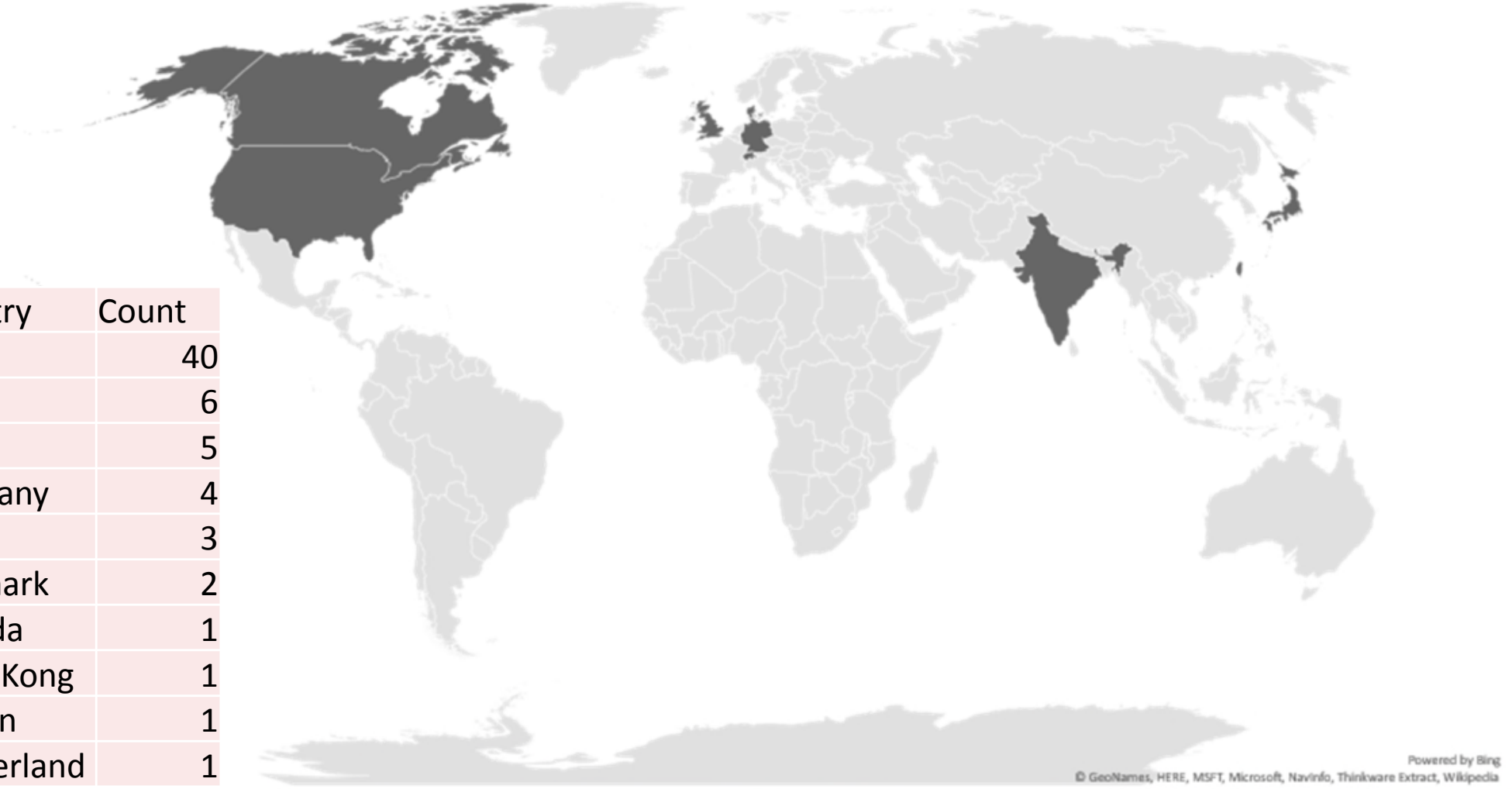
Demographics (n=79)



79 respondents submitted surveys. Half of the responses were from Sponsors, with 28% of responses were CROs, 20% were software/service provides and 1 response each as consultant and academia

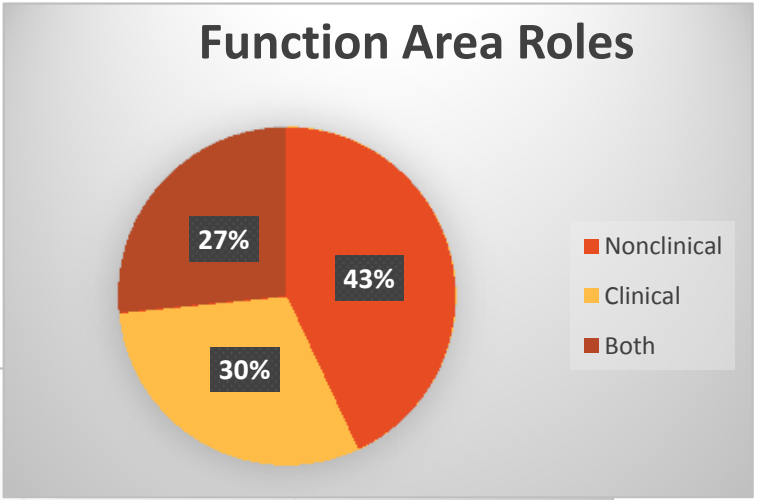
Business Type	
Sponsor	49%
CRO	28%
Software/Service Provider	20%
Consultant	1%
Academia	1%

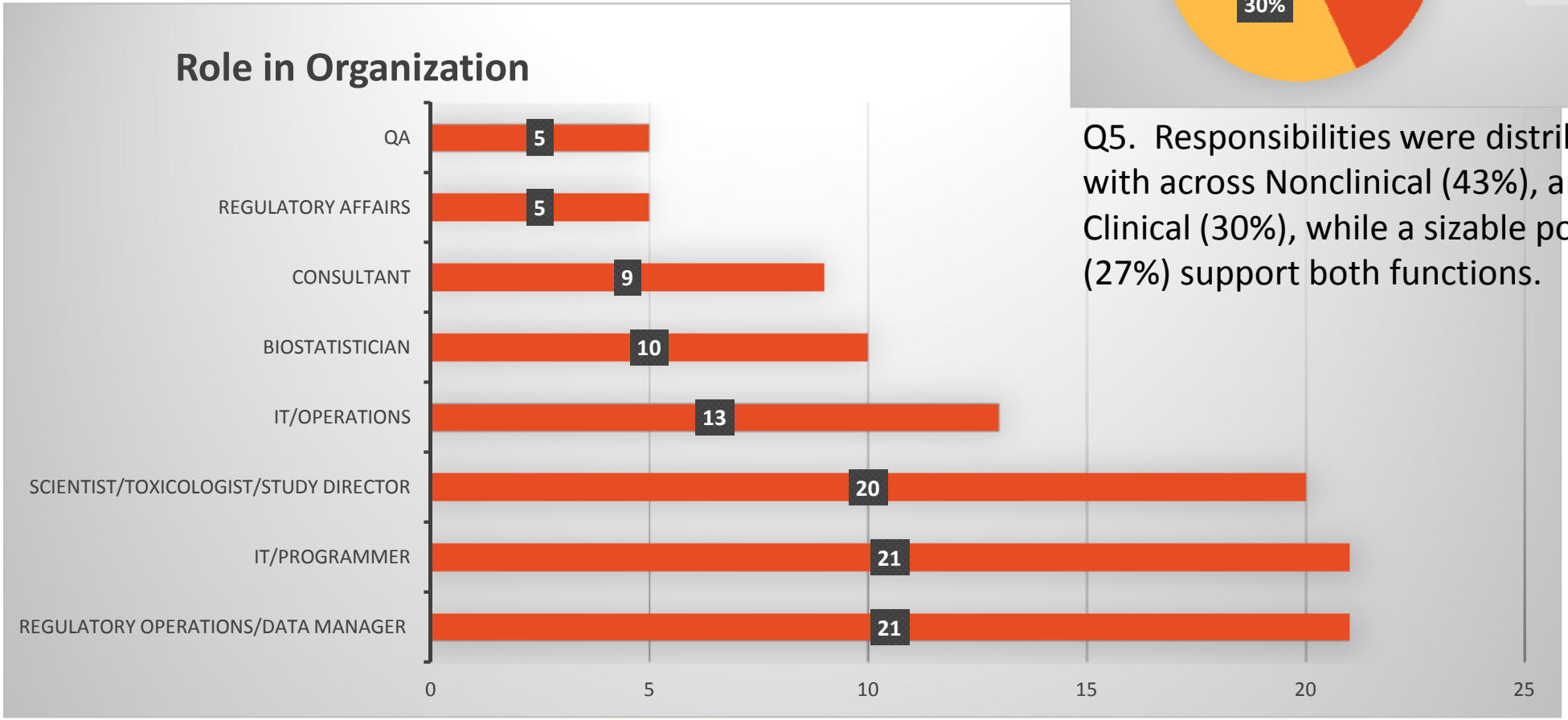
Q3. Respondents from 10 Countries (n=64)



Country	Count
USA	40
India	6
UK	5
Germany	4
Japan	3
Denmark	2
Canada	1
Hong Kong	1
Taiwan	1
Switzerland	1

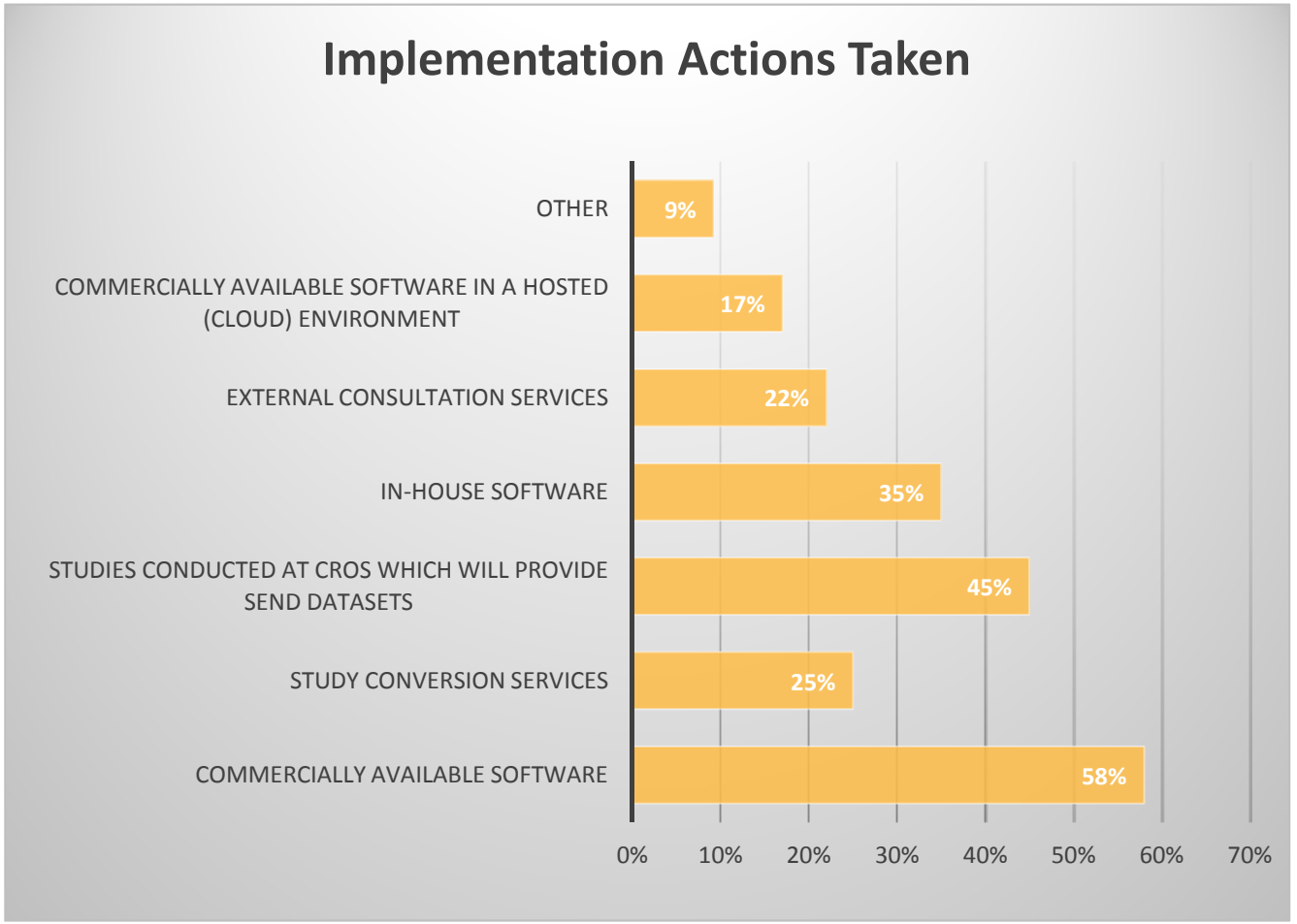
Role in Organization (n=76)



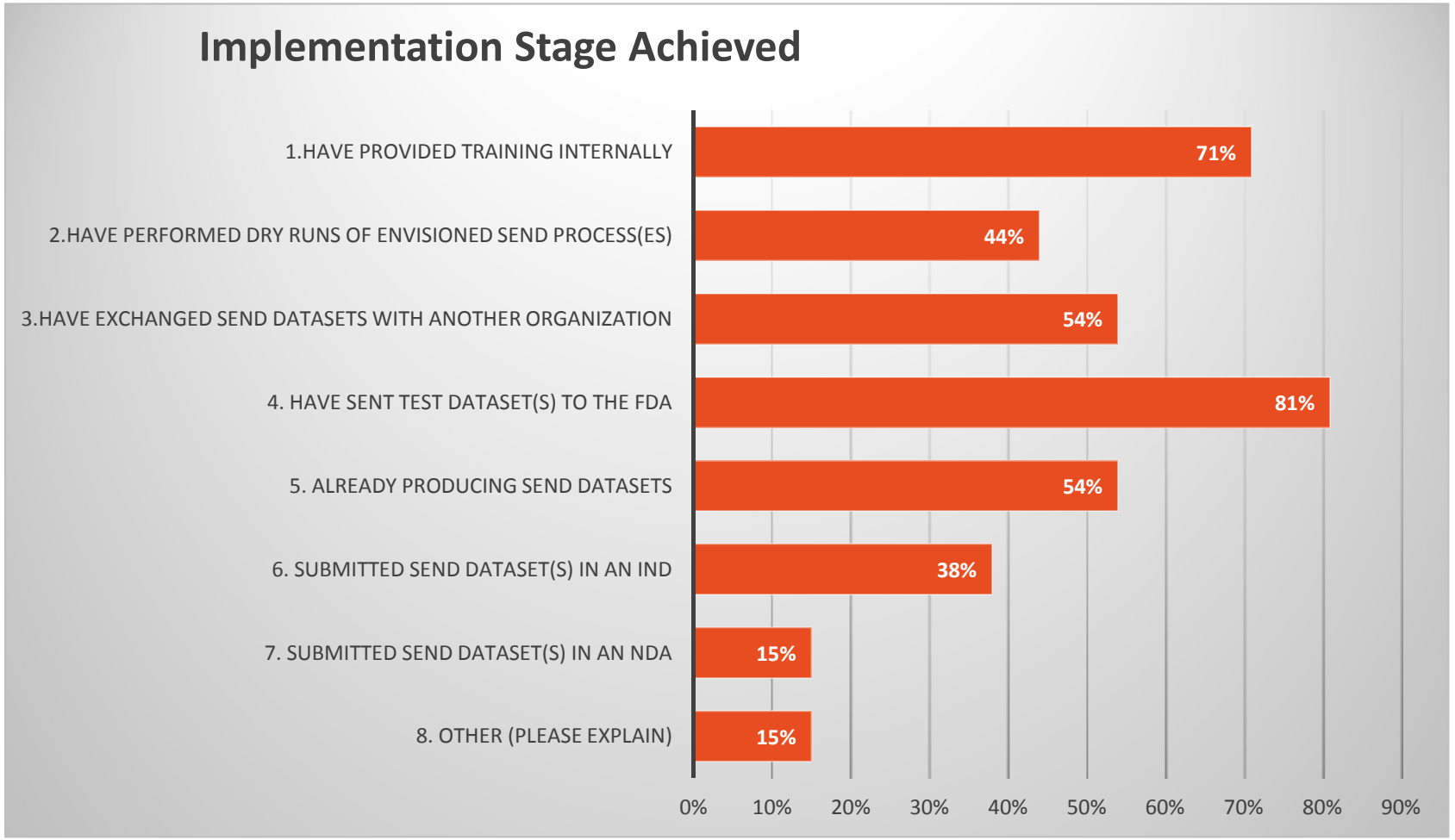


Q5. Responsibilities were distributed with across Nonclinical (43%), and Clinical (30%), while a sizable portion (27%) support both functions.

Q6. SEND Solutions Taken (n=65)

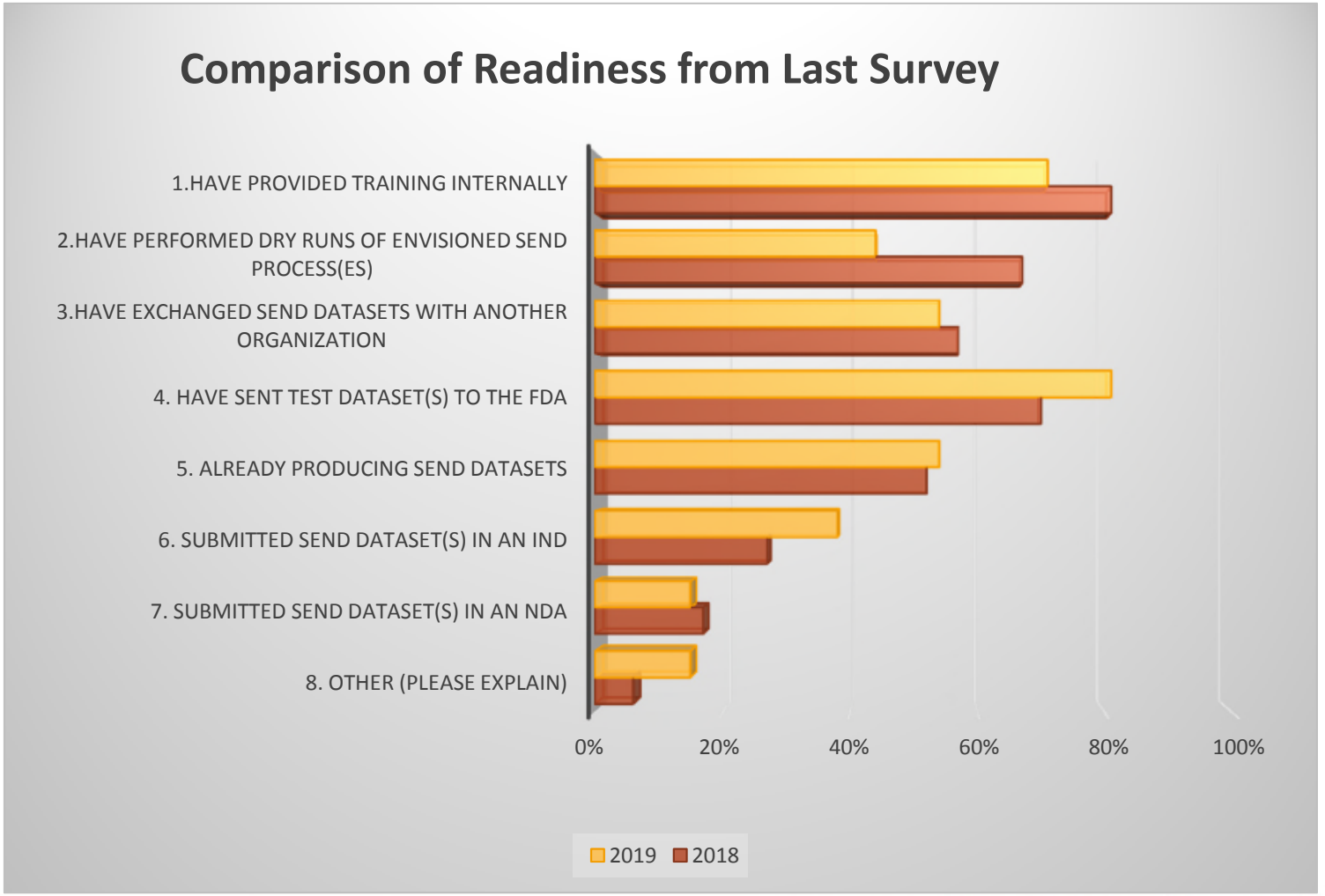


Q7. Stage of SEND Implementation (n=48)

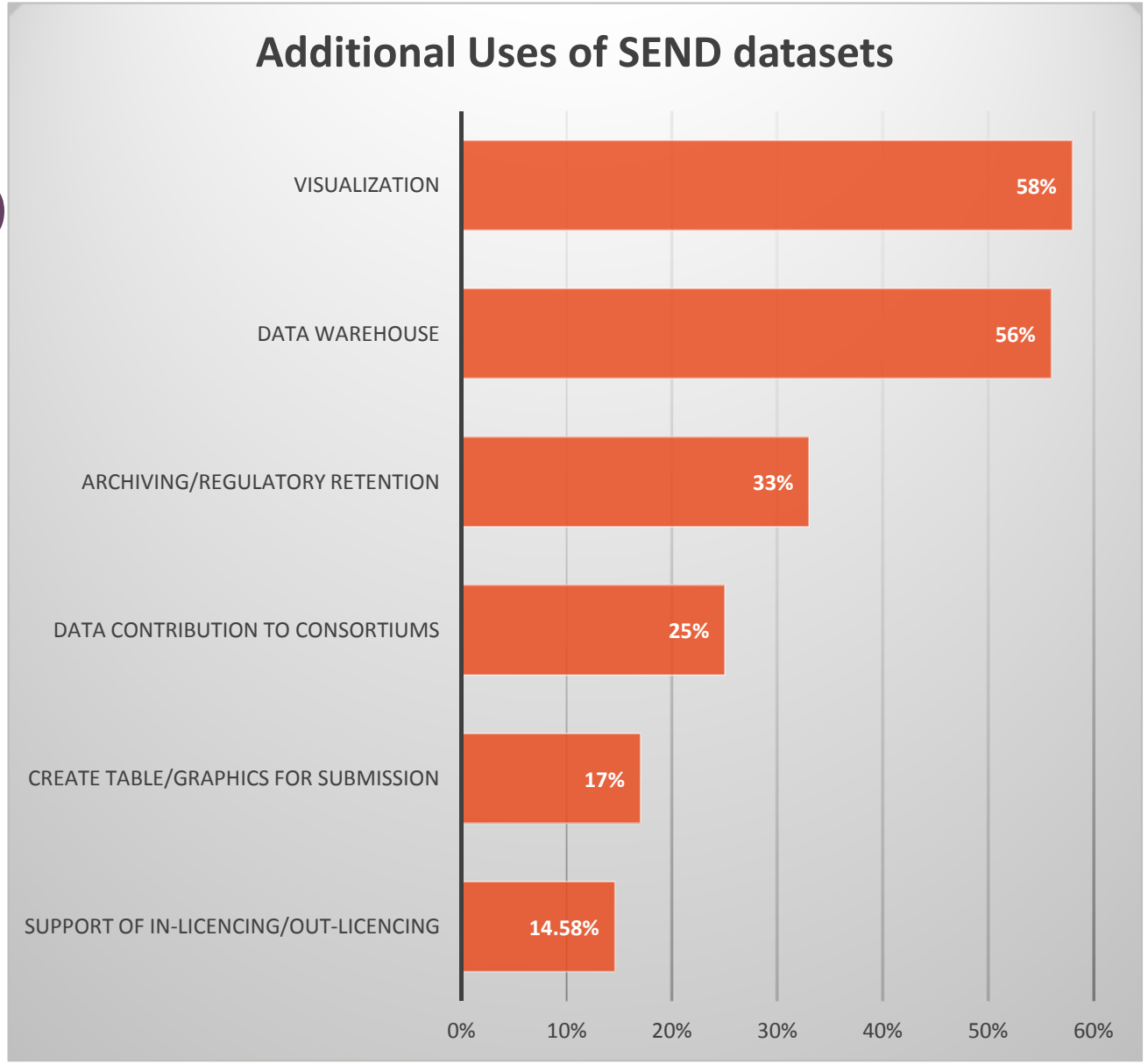


Other ranges from "datasets included in IND and NDA" to "not yet“.

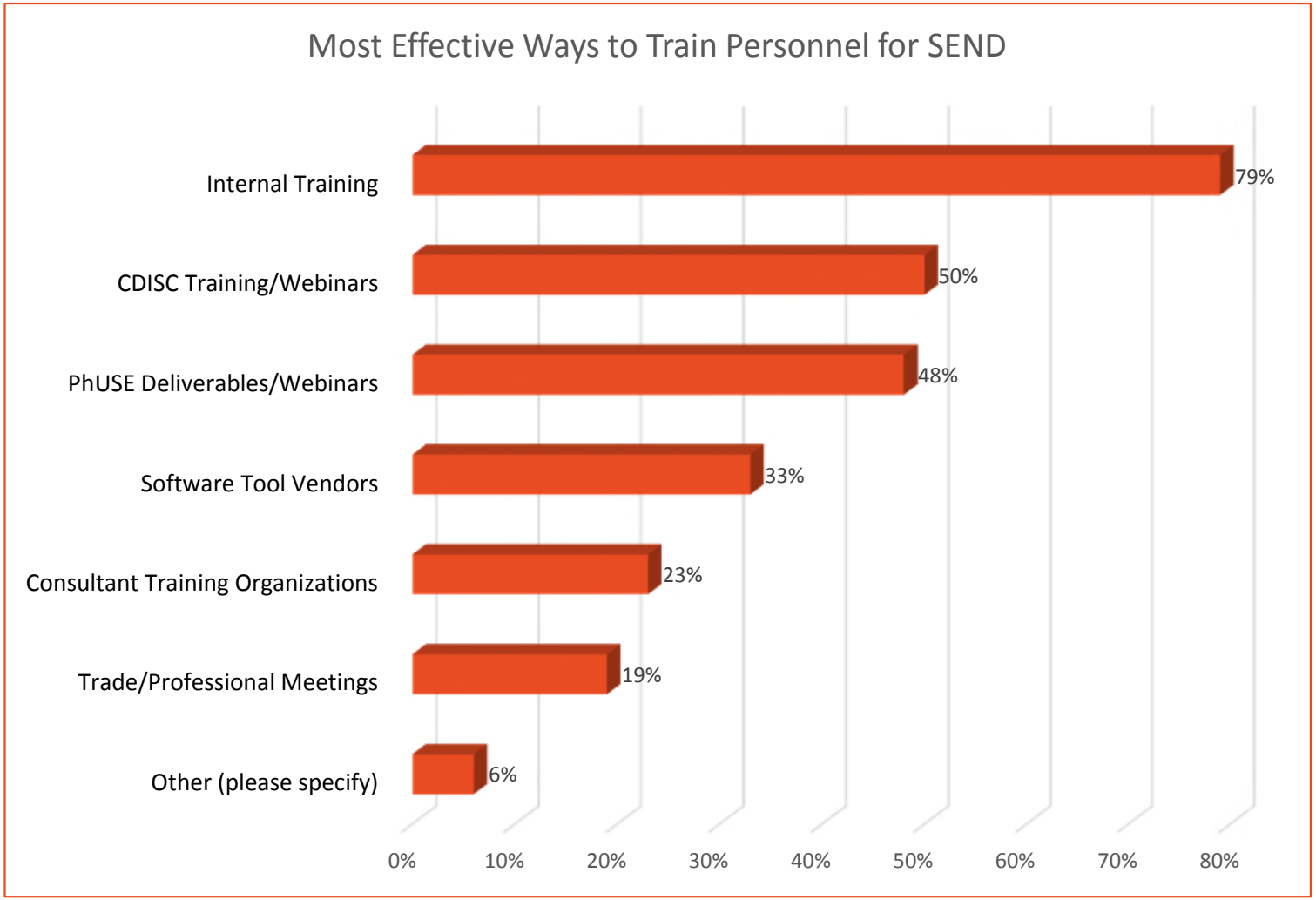
Q7. compared to last year



Q8 Other Uses of SEND



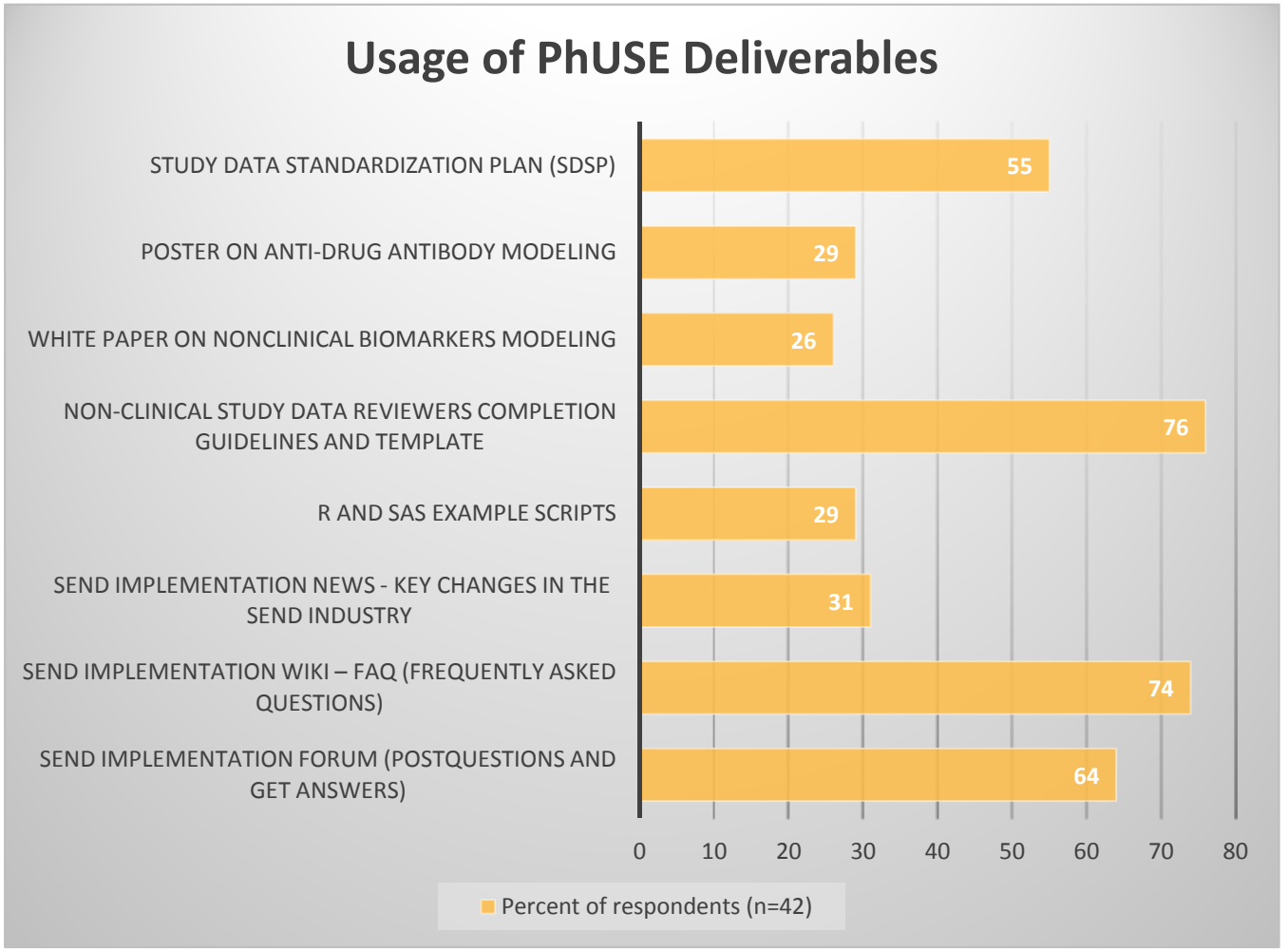
Q9. Training Methods (n=48)



Q10. Training Duration (n=26)

Short		Mid1		Mid2		Long-term	
Role	Duration	Role	Duration	Role	Duration	Role	Duration
Data manager	1 day	Programmer	3 mo	DC	6 mo	Project Manager	12 mo
Associate scientist	1 mo	Programmer	3 mo	SEND Subject matter expert	6 mo	Central coordinator	12 mo
Pharmacokineticist	1 mo	Quality control	3 mo	Create SEND datasets, review, create submission package.	6+ mo	Not specified	12 mo
Data manager	1-2 mo	Data manager	3 mo full time	Not specified	6-12 mo	Dataset mapper and reviewer	18-24 mo
Experienced	1-2 mo	Beginner information scientist	3-4 mo	Leading SEND projects	6-9 mo	SEND Subject matter expert	24 mo
Analyst	2 mo	Reviewer	3-4 mo	Quality control	6-9 mo	SEND SME	years
Production associate	2 mo	Not specified	3-6 mo				
Dataset creation	2.5 days	Not specified	3-6 mo				
Dataset creation	2-3 mo	Prepare datasets	3-6 mo				
Data visualization	4 hr	Quality control	3-6 mo				
		Quality control	3-6 mo				
		SEND scientist	3-6 mo				
		Conversion	4-6 mo				

Q11 PhUSE deliverables (n=42)



Q12 Future PhUSE topics (n=21)

Most Mentioned	Count
Define	4
FDA opinion	4
IG/implementation	3
Validation	3

Requests for FDA communications
SEND and Interim Submissions - FDA view
Update by FDA on SEND. IND submissions? issues?
Collaboration with FDA on feedback from real submissions and sharing with industry
FDA SEND dataset Expectations

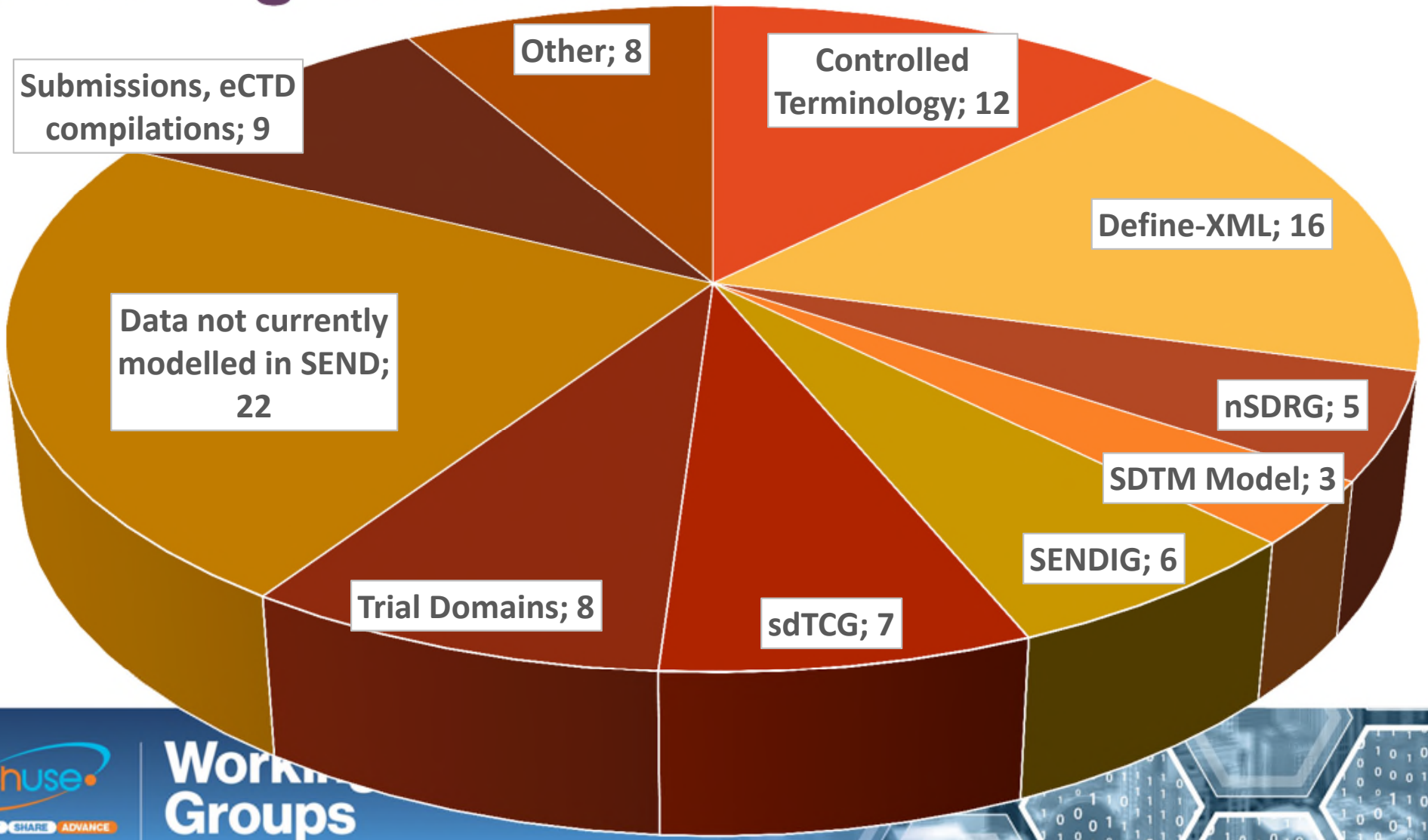
Other topics
Best practices
Clinical vs nonclinical
Communication/publications
nSDRG
Comparison of Vendor solutions
Consistency/standardization
Data factory
eCTD
Immunophenotyping
Industry-proposed "business" rules for content
PC/PP
QA audit requirements
Safety pharm
Scripts
Study plan & report standardization
Test data
Value vs effort

Q12. What PhUSE deliverables would you like to see PhUSE work on? Or describe any other topic you're seeking information on.

– all responses

All responses
Preclinical study plan/report template standardization for global use and acceptancy.
Study data extraction from PDF - Guidelines or best practices for SEND dataset creation.
a set of scripts to generate SEND datasets based on a mapping template.
A test data store
Comparison of Vendor solutions
Data factory
Define.xml needs of FDA and what is a good define.xml file.
Differentiation of warnings that are clinical from those that relate to SEND
FDA SEND dataset Expectations
How about a set of business rules (validation rules) that would increase the quality of SEND data? CDISC will only deal with technical conformance, no one deals with the content. Coming up with some business rules and providing a platform where the industry can submit proposals to new ones, could be valuable.
How it is actually placed into eCTD.
Increased focus on SEND (Nonclinical) topics included in the PhUSE webinars
More specific guidance for the Define files for Nonclinical studies.
more specifics about define.xml
nSDRG with FDA business rules
Place to discuss validation rules and outcomes.
Pinnacle21 validation rules assessment.
SEND and Interim Submissions - FDA view
SEND IG and its implementations
Slides and posters presented at various PhUSE events (SDEs, Connect, CSS, etc.)
update by FDA on SEND. IND submissions? issues?
Wasn't aware of SEND implementation news. Would like to get updates via email if possible. Interested in nSDRG.
Modelling Immunophenotyping in SEND
Define 2.0 for SEND
Collaboration with FDA on feedback from real submissions and sharing with industry
Safety Pharm implementation of SEND - Data process
A repository of SEND submission experiences or best and worst practices.
An assessment of regulatory value vs operational effort on some deliverables (i.e. define, nsdrg, BG domain, SE domain...)
Documentation of differences between clinical and nonclinical that may require differences between SDTM and SEND to help industry and FDA.
Consistent implementation of SENDIG
the QA audit requirements for SEND datasets
more specifics about PC and PP

Q13 Stumbling blocks or barriers for your organization? (n=39)



Q14 - Other stumbling blocks:

- No feedback from FDA regarding SEND submissions
- Challenges with study data extraction from PDF doc. and/or non-editable PDF/images
- Variability in how data is represented or not represented in SEND across studies from various sources
- CRO variability in implementation of SEND
- The cadence of new TCG and SENDIGs causing constant software upgrades and validations.
- System integration
- Raw data offered delivered as badly organized Excel

Q15. What FDA feedback have you received regarding the SEND submission that you can share? (n=19)

Dos:	Don'ts:
Set fasting flags	CLTPT for unscheduled
Identify each dose location	Generic time point names
Accurate keys in define.xml	Confuse Decodes and Codes
Valid number of decimal places	Generic validation explanations

Q15. FDA feedback question – All responses

All Responses

n=5	No feedback received
define	A request to correct the define.xml file in relation to the Origin field (not to use "Other")n the Decode field (not to have a full definition) and code lists (not to share code lists across variables if they have different values that were used).
define	Define - Invalid use of variable codelist as study-wide terminology, Missing Codelists for many variables
define	We've submitted sample submissions and the main feedback is being discussed in the PhUSE WG: Demystifying Define-XML Codelist Handling for Nonclinical Studies
	Fasting flags were not set - CLTPT filled for unscheduled observations. - Location of each dose is not identified. EXLOC not included. - Code values were decodes. Decodes should be test specific. - Scores in CL could not be used for incidence summaries. - The entry in TESTRL is the label to describe the date in SESTDTC for the associated element, and the entry in TEENRL is the label to date in SEENDTC for the associated element. The label for a specific date cannot be the first or last week of dosing; it must be more specific. - some keys in DEFINE are not properly defined. --SEQ as an example. - Some comments that are included are not specific to the study.
	FDA´s feedback to sample submissions is very often quiet generic and not detailed enough. In addition, most of the comments are more related to clinical than non-clinical rules/requirements.
	Unable to talk about specifics, but in general, the feedback we have received has not always been consistent and various issues raised, have obviously come from individuals with a clinical focus that would benefit from a deeper appreciation of SEND.
	We have seen feedback from test submissions on our SEND datasets. Honestly, we found it hard to decode the significance of that feedback. It appeared to be an exact list of what we had already provided explanations for in the nSDRG, but there was no real feedback on whether the deficiencies and/or explanations were acceptable. The only place where there was a comment about one of our explanations was about a Pinnacle validation rules that (always) produces false positives in all studies, which was also the case in the submitted study. The feedback was: Generic and invalid explanations for validation results For example, • Validation issue SD1117: “Duplicate records” in LB domain” • Provided explanation: “The validator tool does not use VISITDY as a key when looking for duplicate records. This some tests within this domain only contain nominal timing. Therefore, VISITDY is part of the natural key structure of the domain. The domain does not contain any duplicate records.” • This statement is incorrect in this study. Also, this exact wording was observed as invalid generic explanation in many other submissions. • Based on actual data of submitted sample study and according to submitted study metadata in define.xml, LBTPTNUM is an additional Key Variable which explains of all reported duplicate records. Does this feedback mean that we need to list all the keys of the domain, which are already indicated in the define file, in the explanation as well, when it is clear that Pinnacle not using the define key structure is the underlying problem, and the dataset really doesn't contain duplicate records? It seemed more like the feedback from FDA was generic and without much substance.
	What are considered acceptable responses to Pinnacle21 validation errors and warnings. Better guidance on define.xml files. What level of accuracy and good scientific practices is acceptable to FDA?

Conclusion

The survey results suggest overall SEND readiness across the industry. Implementation challenges remain, such as the ability for data collection software and processes to respond to changing SEND needs. Challenges also remain in interpreting the specifics of the standard. The SENDIG is flexible so additional feedback from regulators on specific implementations is desired. Topics such as the Define.xml file, the nSDRG, and common terminology top the concerns. This points to the need and importance for sustained efforts by the PhUSE non-clinical group to help overcome these challenges.