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Preliminary Results from a Survey of State DOT Website Infrastructure

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Organizations

Traditionally arranged by bureaucratic hierarchy

Government agencies

Debate about centralization and decentralization of service provision

Tied to politics

Organization can influence service quality

Studied in public administration

Studied by socio-technical researchers

E-government services are not typically examined in this way

Cloud Computing

Refers to a formal computational model

Five essential characteristics

Three service models

Four deployment models

More than Google docs

Descriptive parts also apply to many online
networks

Underlying concept not new

Rooted in networking of computer systems

Definition

Essential Cloud Computing characteristics are

On-demand service

Broad network access

Resource pooling

Rapid elasticity

Measured service

Not all apply to every government website

Most exhibit multiple traits

Definition Cont.

Cloud service models include

Software as a Service

Platform as a Service

Infrastructure as a Service

Similar to contracting out, but granular

Very flexible

May not see if something is Cloud-based

Decentralizes service provision from single provider

Definition Cont.

Deployment models include

Private
Community
Hybrid
Public

Describes non-Cloud systems too

Refers to where systems are physically deployed

Why It Matters

Cloud-based approaches tied to broadband

High-speed Internet 70%+

Likely to become more so in the future

Decouples government staff from online services they provide

Same can happen with other approaches

Research tends to focus on usability or security

Challenges and benefits of using virtual assets

Management needed

Potential for greatly increased complexity and problems

Socio-technical Research

Overlap between organizations and technical systems

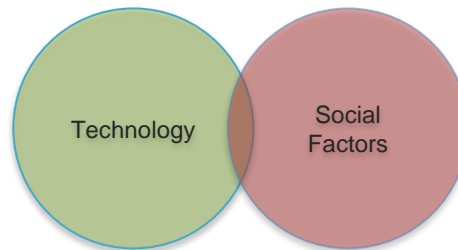
Think of roads like technology

Requires design and standards

Have to plan for users and people or they won't work well

Investment

Managers are responsible for implementation



Study the overlap between spheres

Possible Benefits

For public administrators

Identify causes of Web infrastructure adoption to make more purposeful

Remove barriers to best practices

See how innovations spread

Use all of these lessons to build better websites

Value for most transportation librarians

Often lack a say

Designed mostly for public communication

Leverage to shape infrastructure in way that helps librarians

Methodology

Online survey sent to three groups

AASHTO Subcommittee on Information Systems

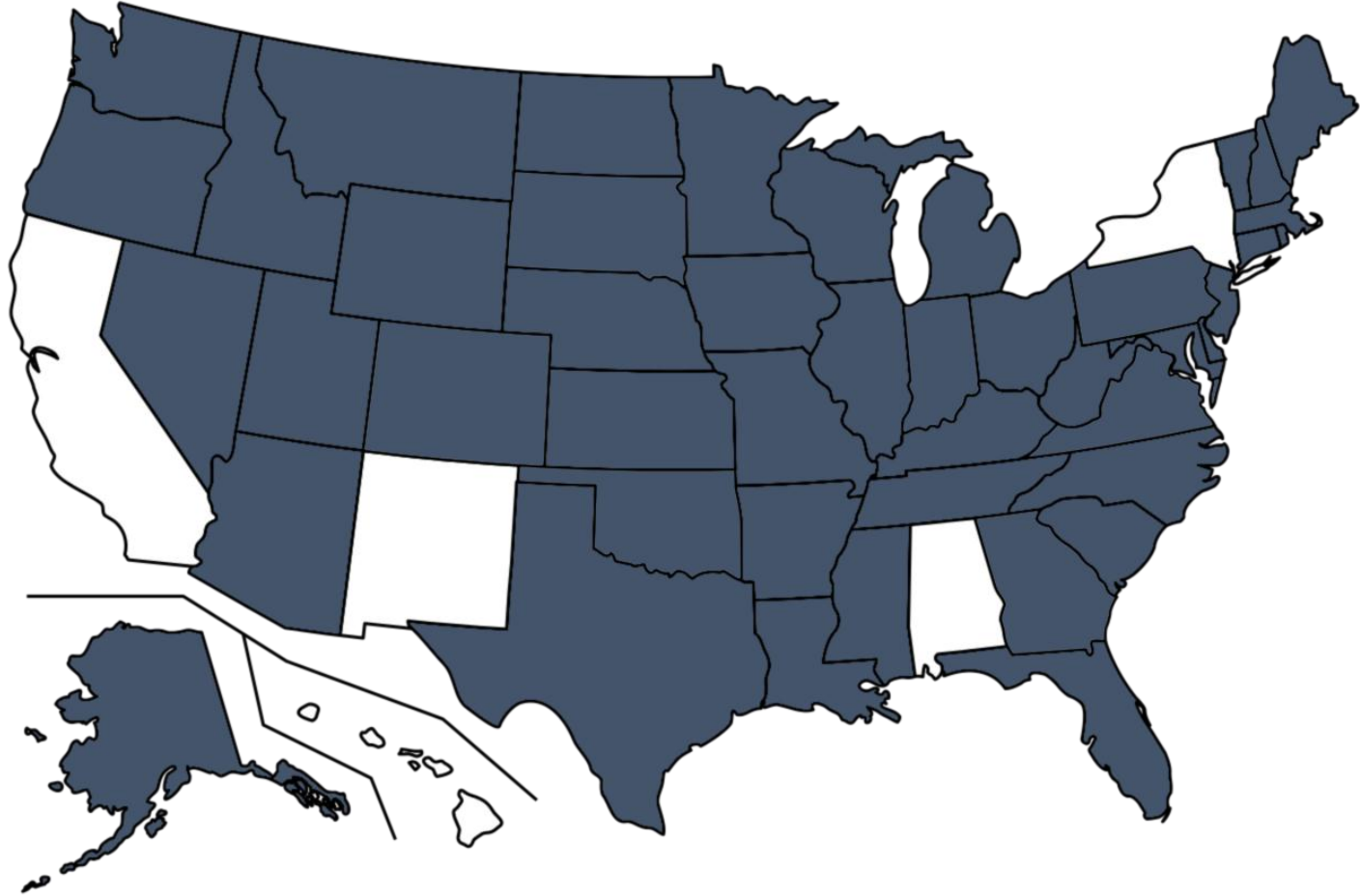
SLA Transportation Division

TRB Information Services Committee

Collected summer of 2015

Used definitions from literature to frame questions

Follow-up interviews nearly done



Summary of Demographics

Generalizable threshold (N=45) for responses

More individuals (61) than states

Mean (13.9) is over decade of experience

Mid-sized (4,062) agencies mean by FTE

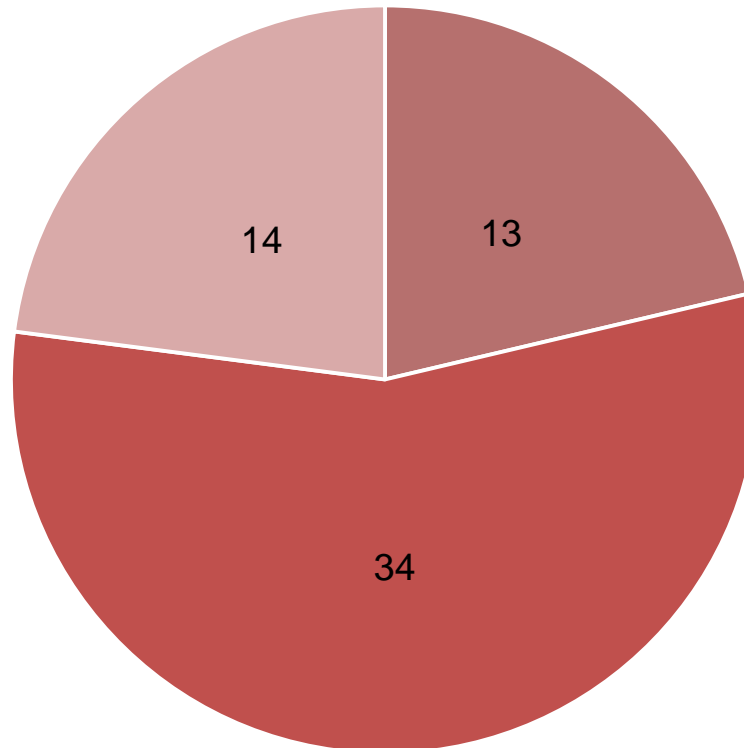
Small (4.2) mean for Web staff

Average site built in 2010

Mid-sized (6,366,683) state mean by total population

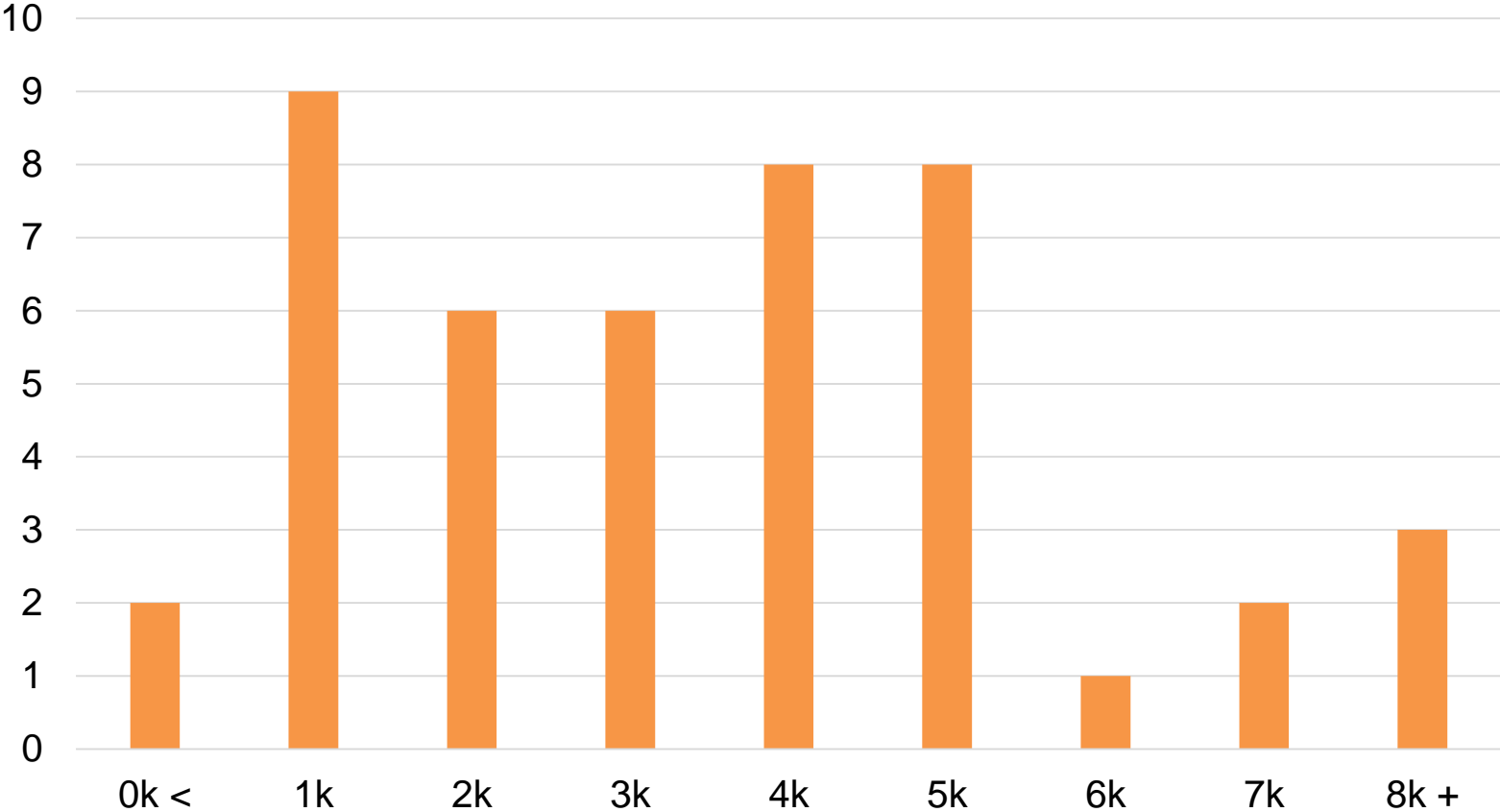
Mean (\$107,116) lane mile spending

Job Titles by Classification

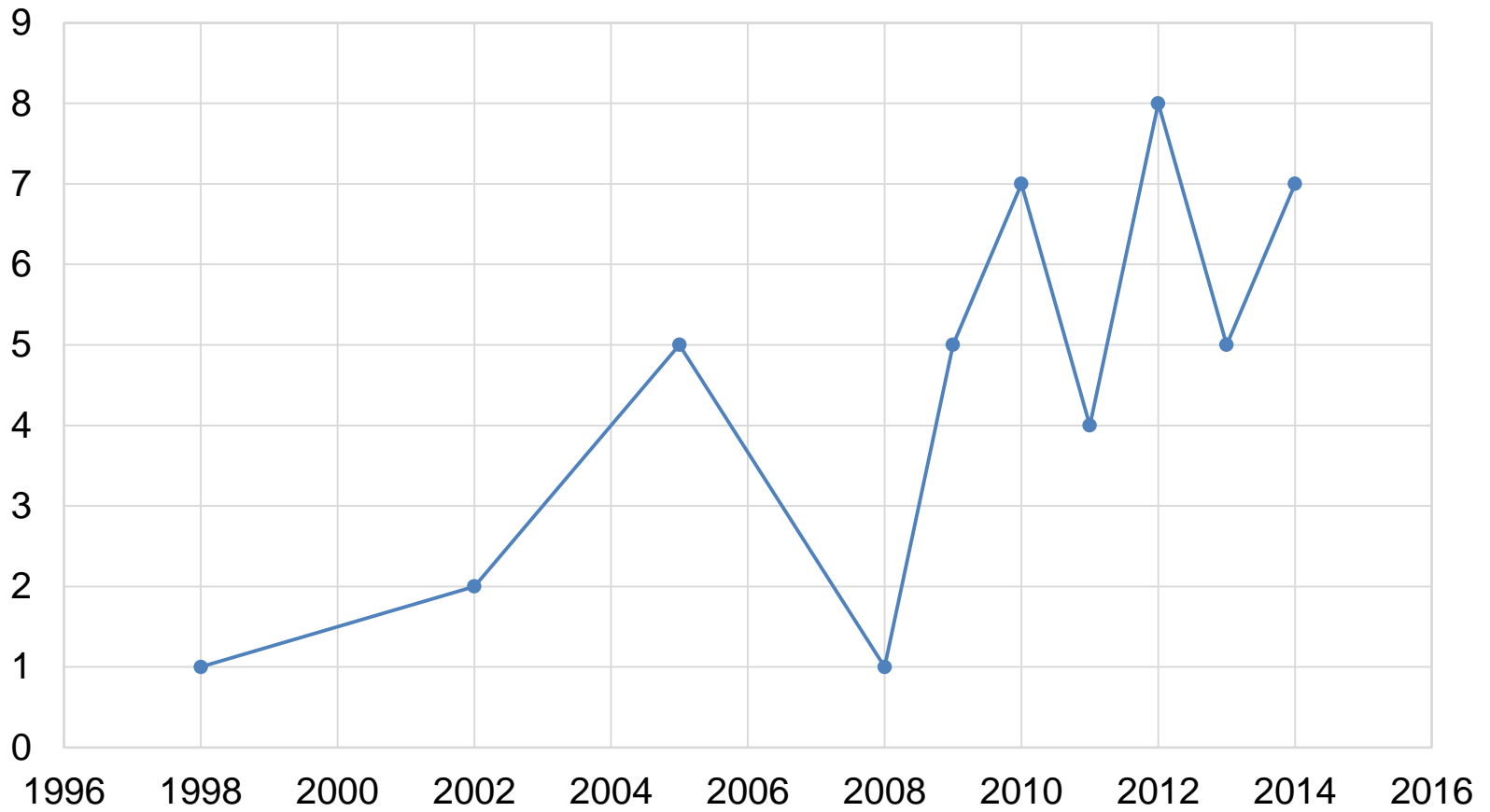


■ Executive ■ Management ■ Staff

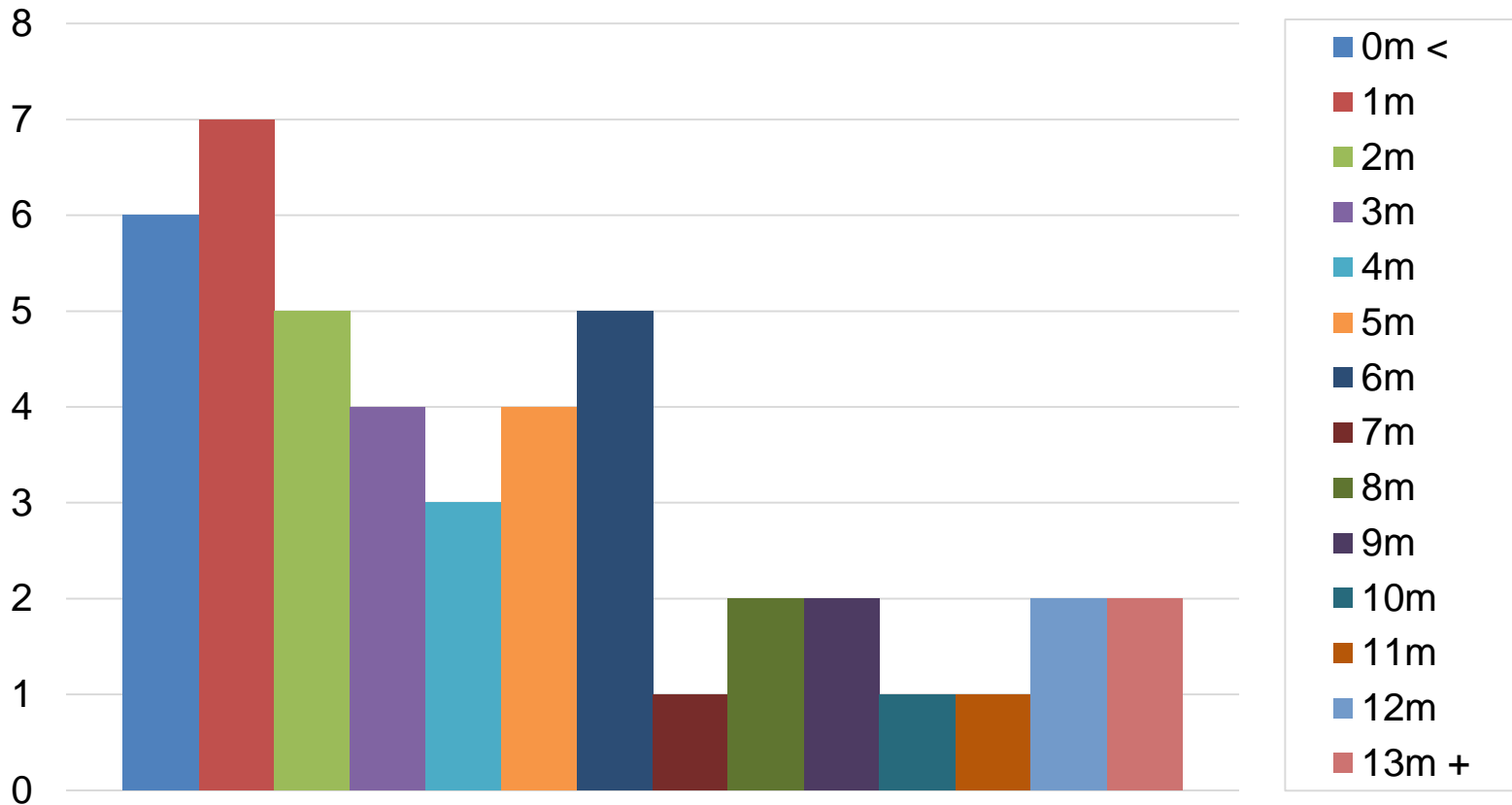
Agency FTE Counts in Thousands



Sites Built by Year



State Population Counts in Millions



Summary of Infrastructure

Most (n=28) were built in-house

Only two known states host their website in the
Cloud

On-demand self-service (n=10) is rare

Vast majority reported having (n=40) broad network access

Many (n=23) pool resources

Most (n=23) infrastructure was not rapidly elastic

Majority (n=33) measured

Most DOTs take a centralized approach

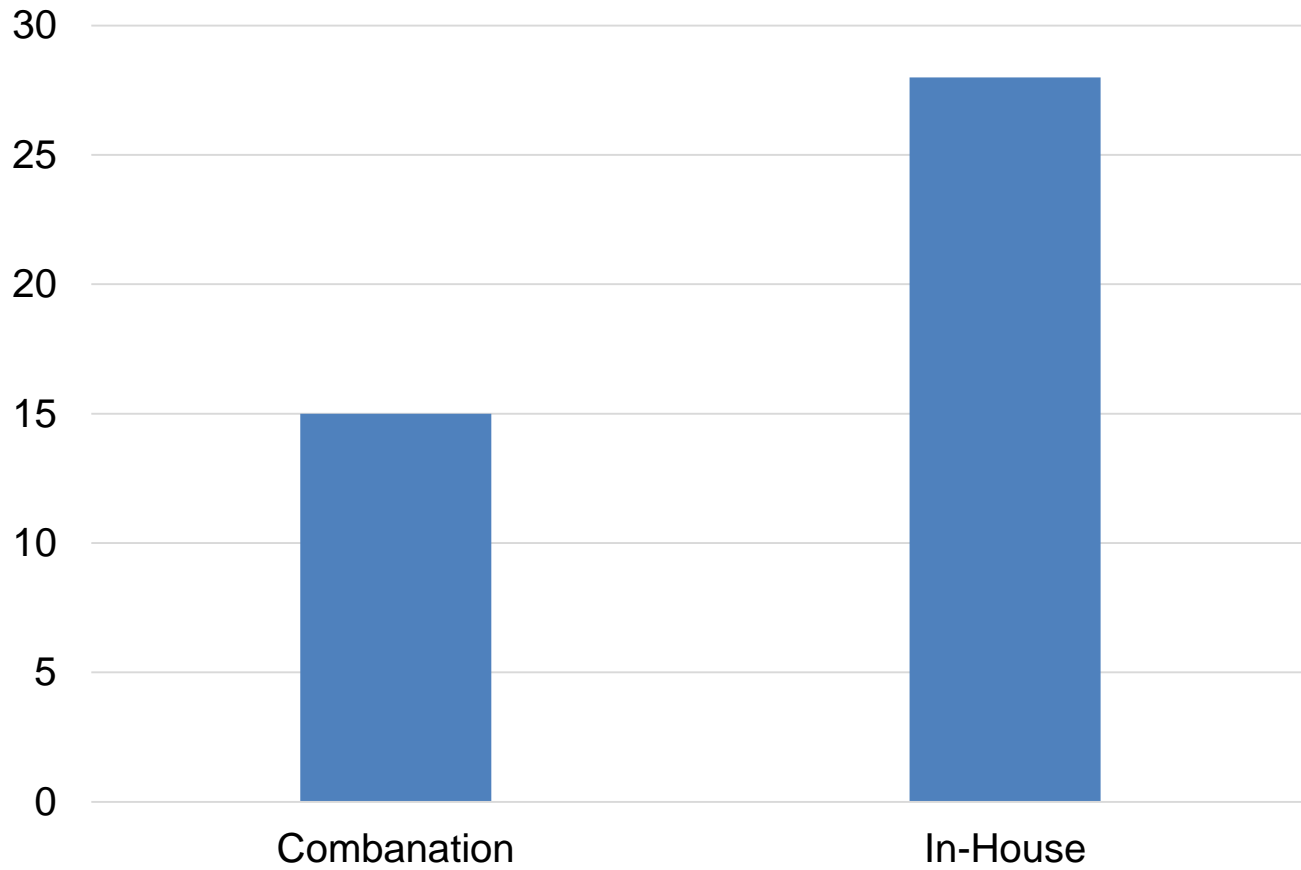
State IT often involved

Summary of Infrastructure

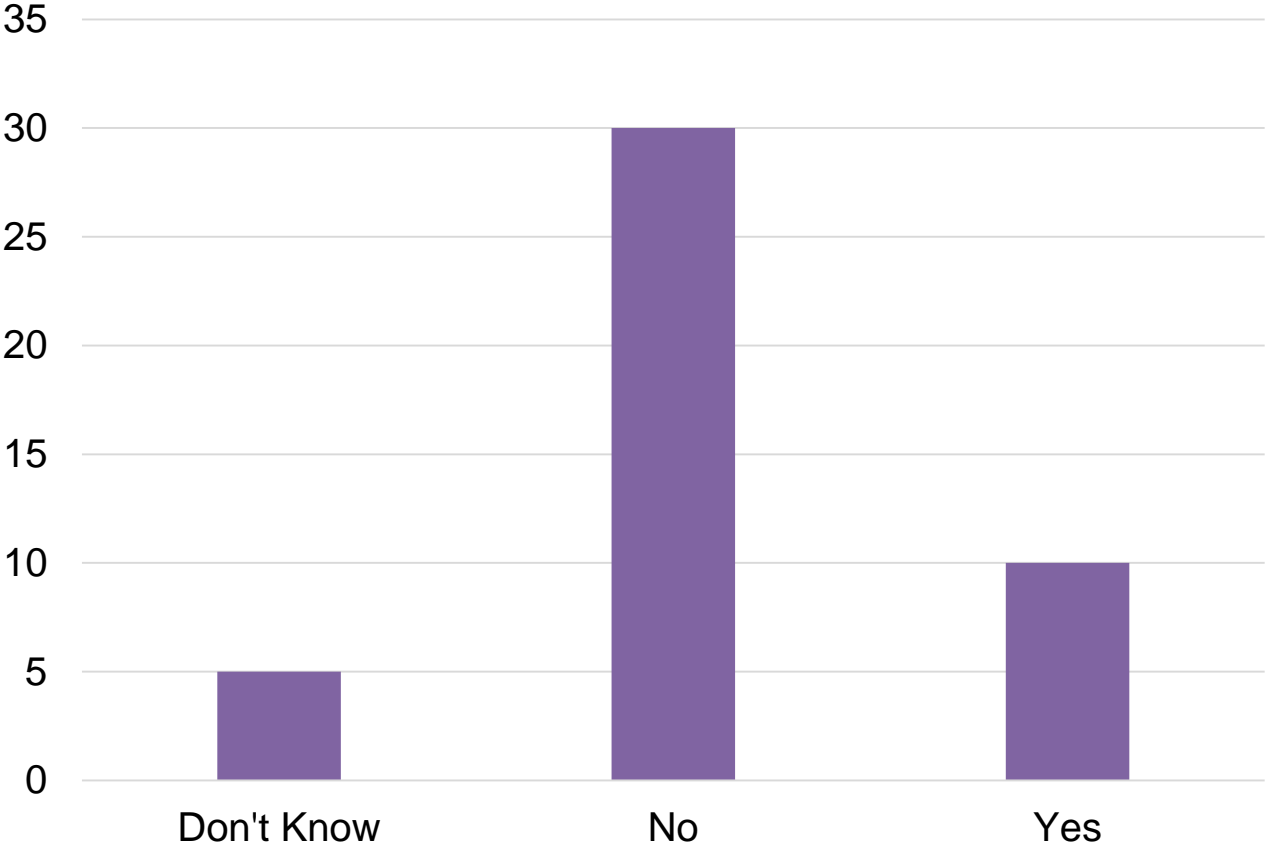
Most infrastructure deployed (n=32) privately
Even more administer infrastructure (n=37) in-
house

Content usually (n=42) in-house

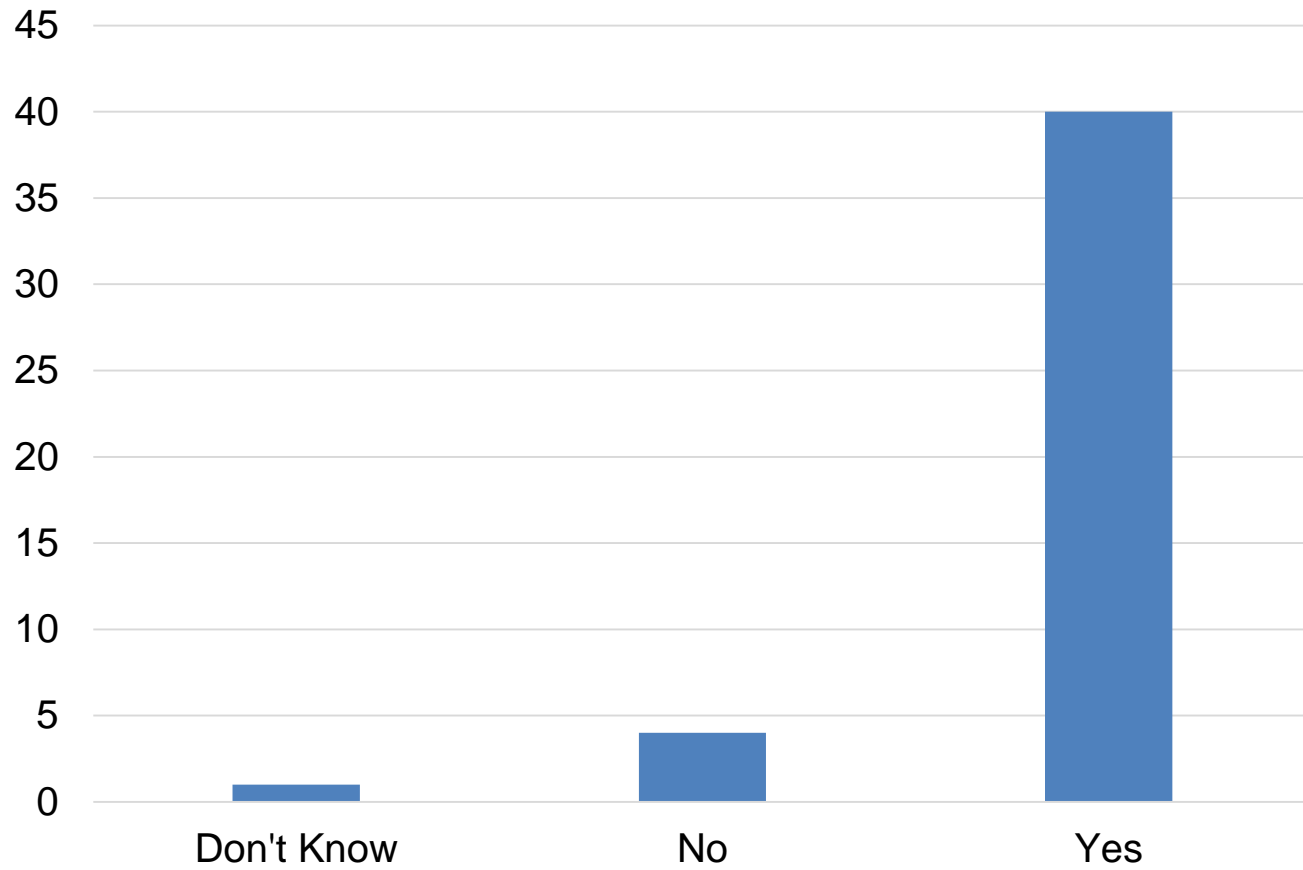
Site Built Location



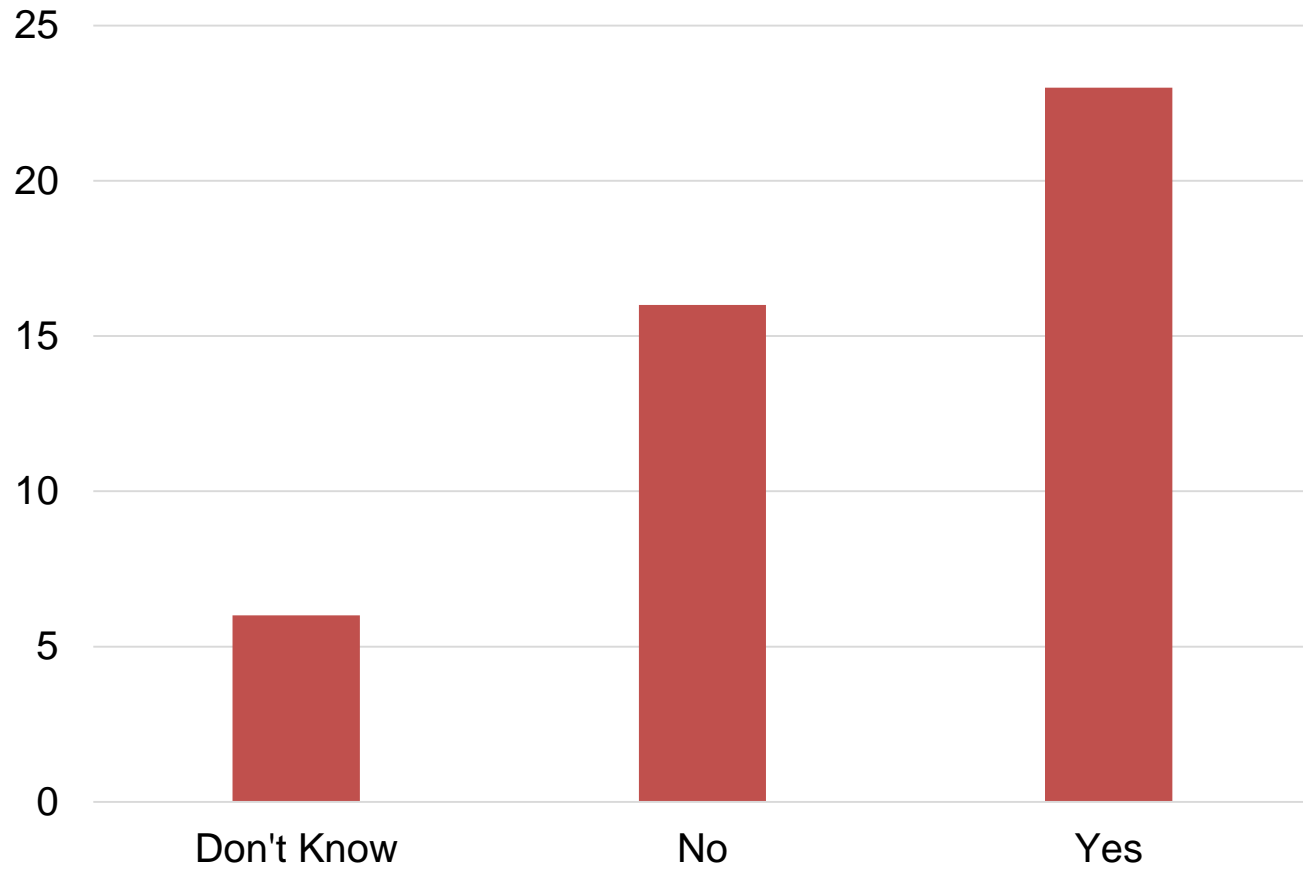
On-Demand Self-Service



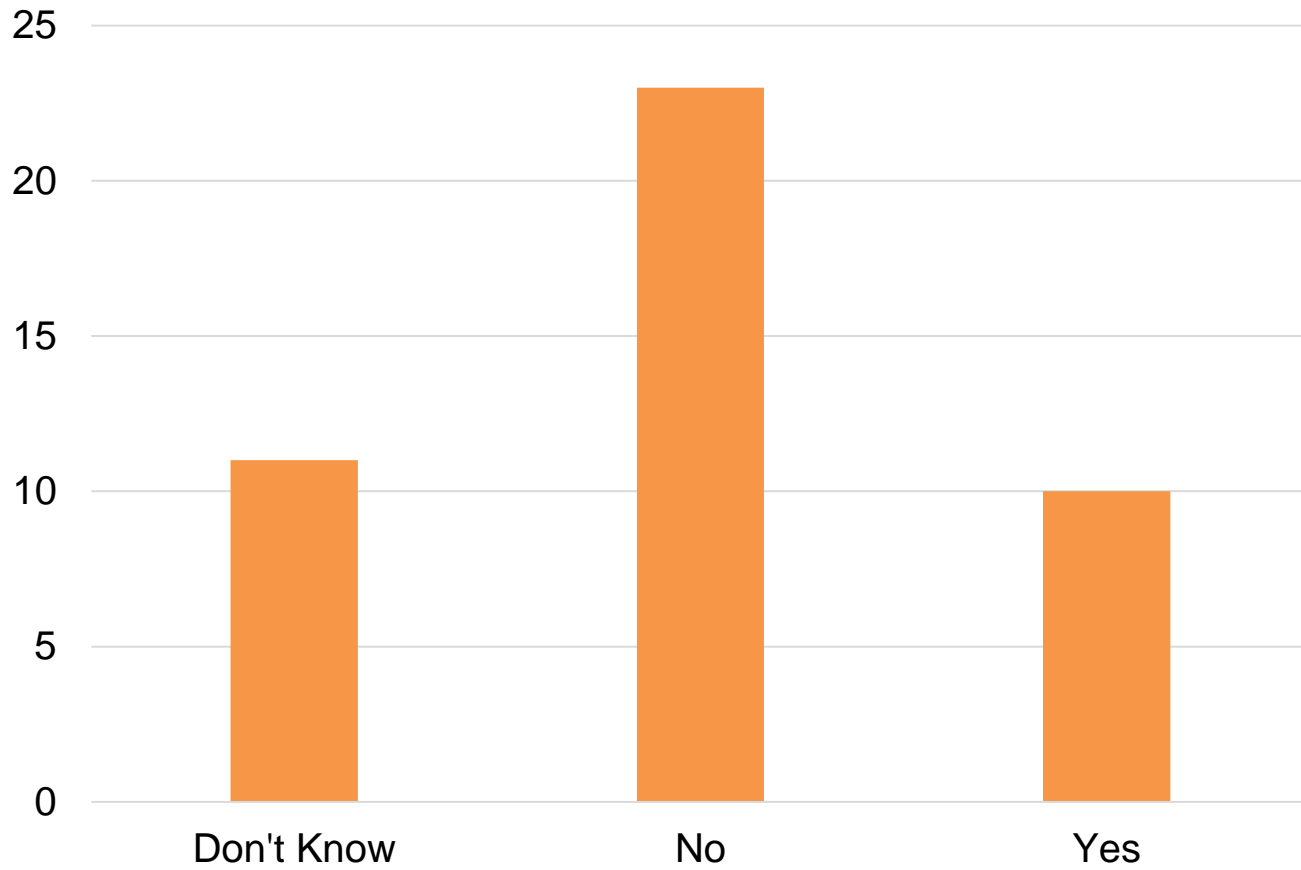
Broad Network Access



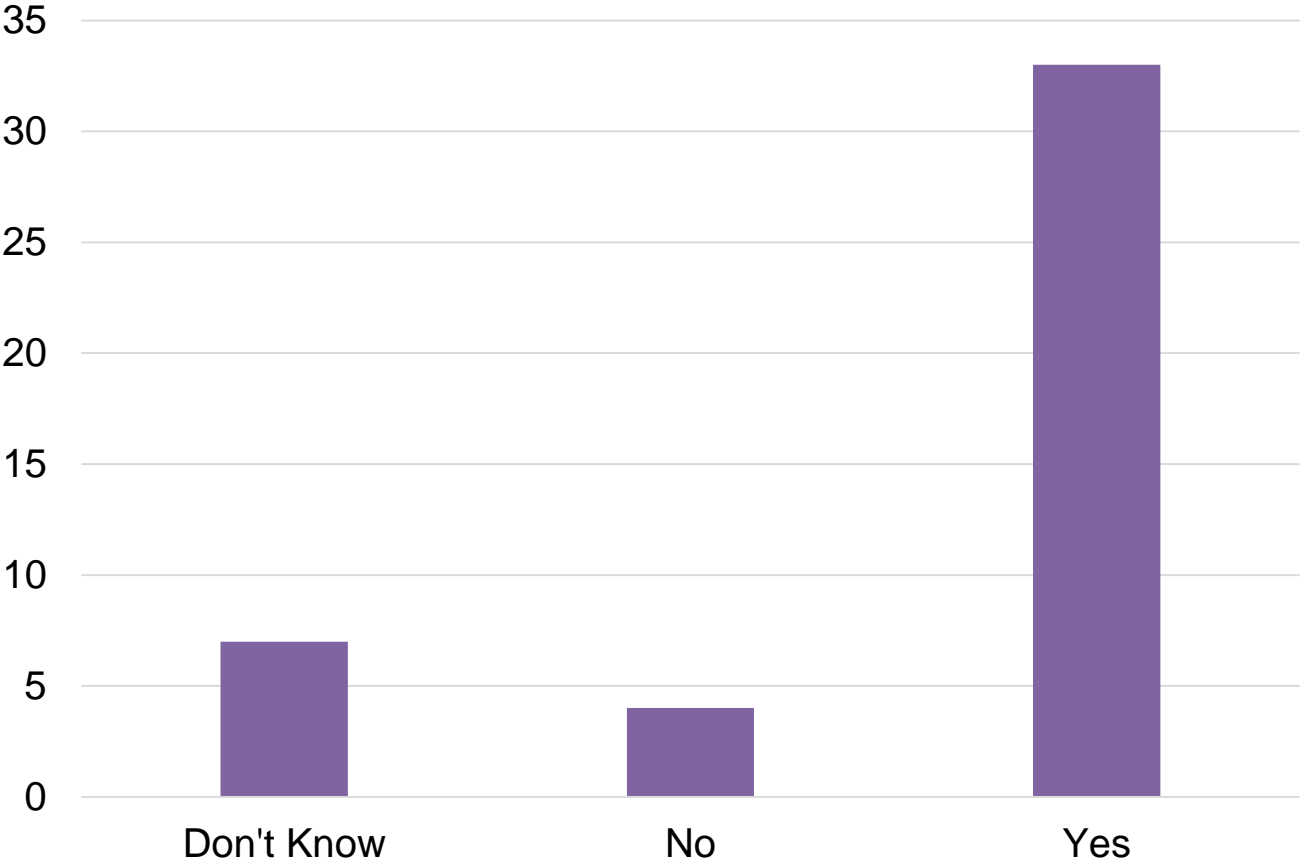
Pooled Resources



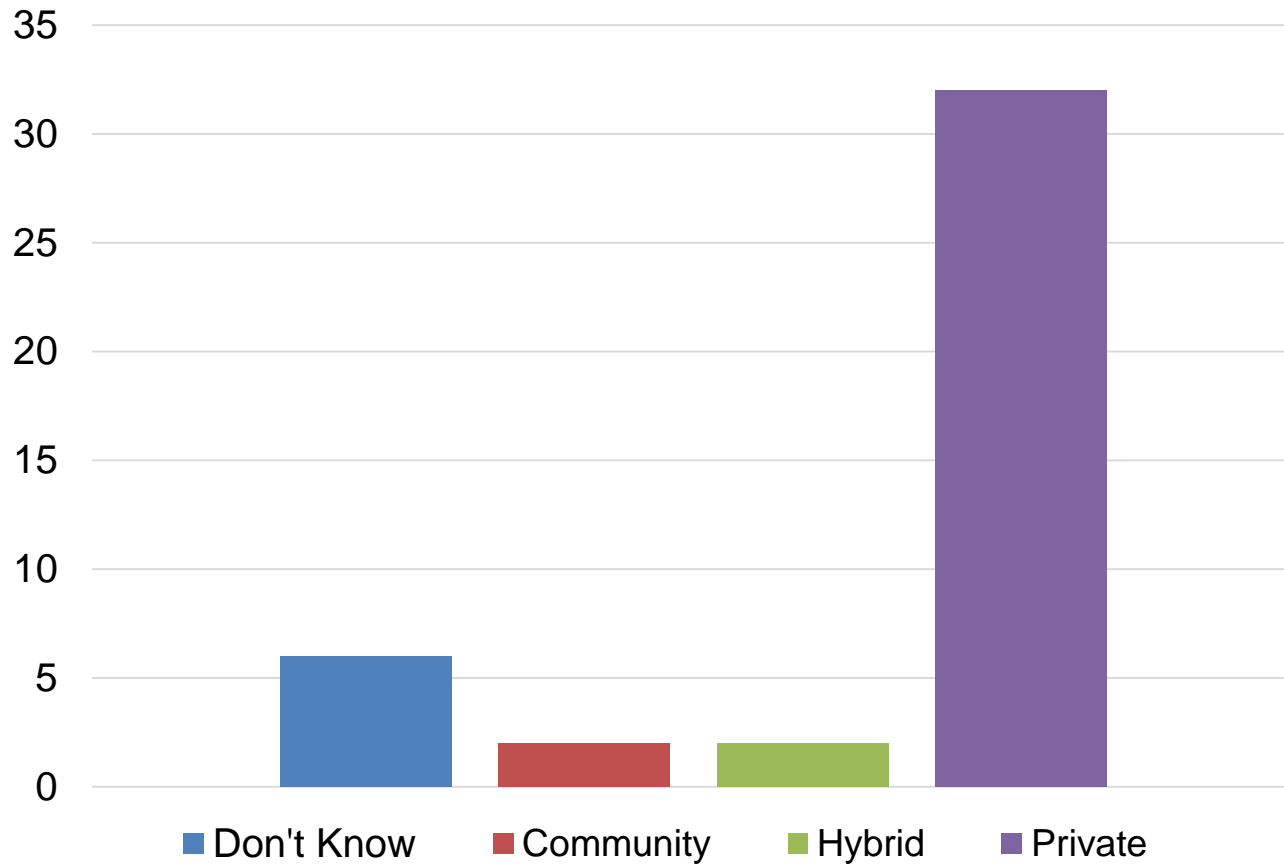
Rapid Elasticity



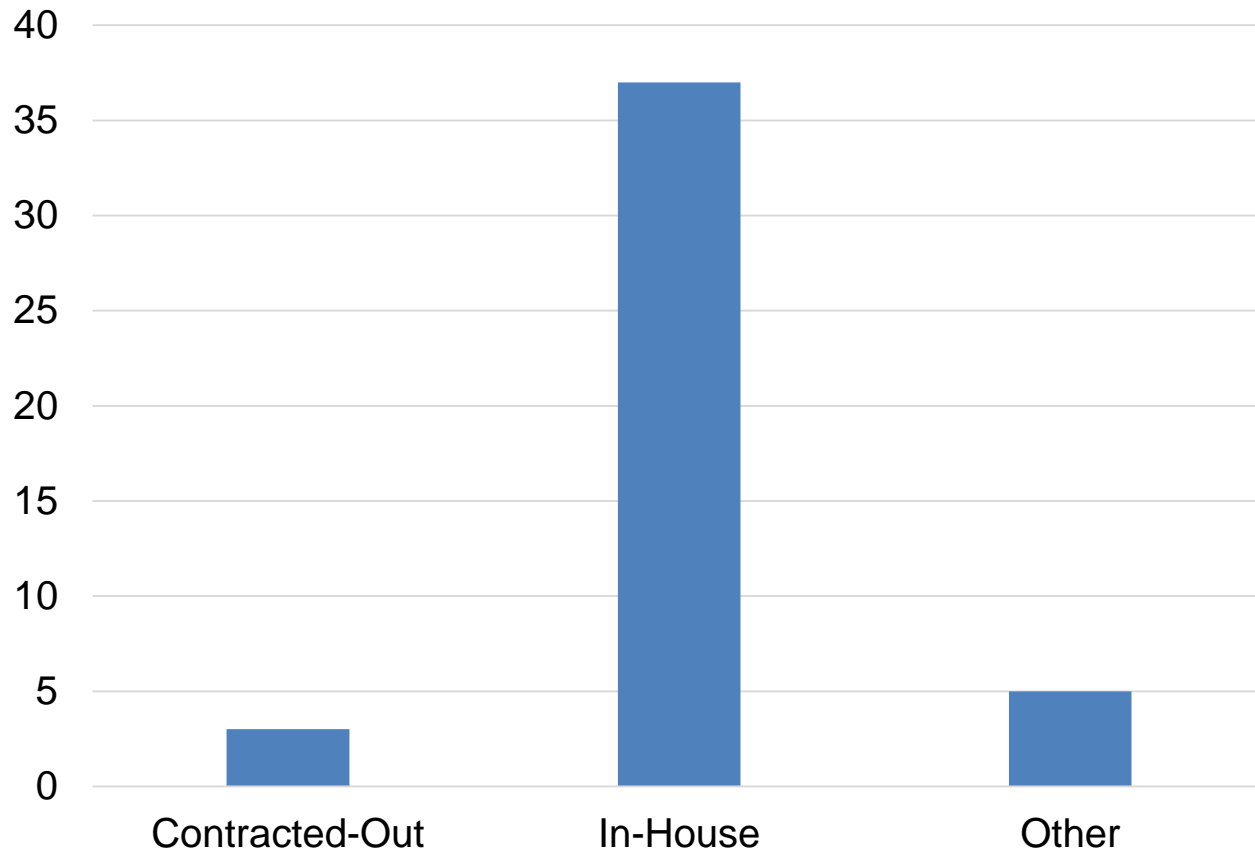
Measured Service



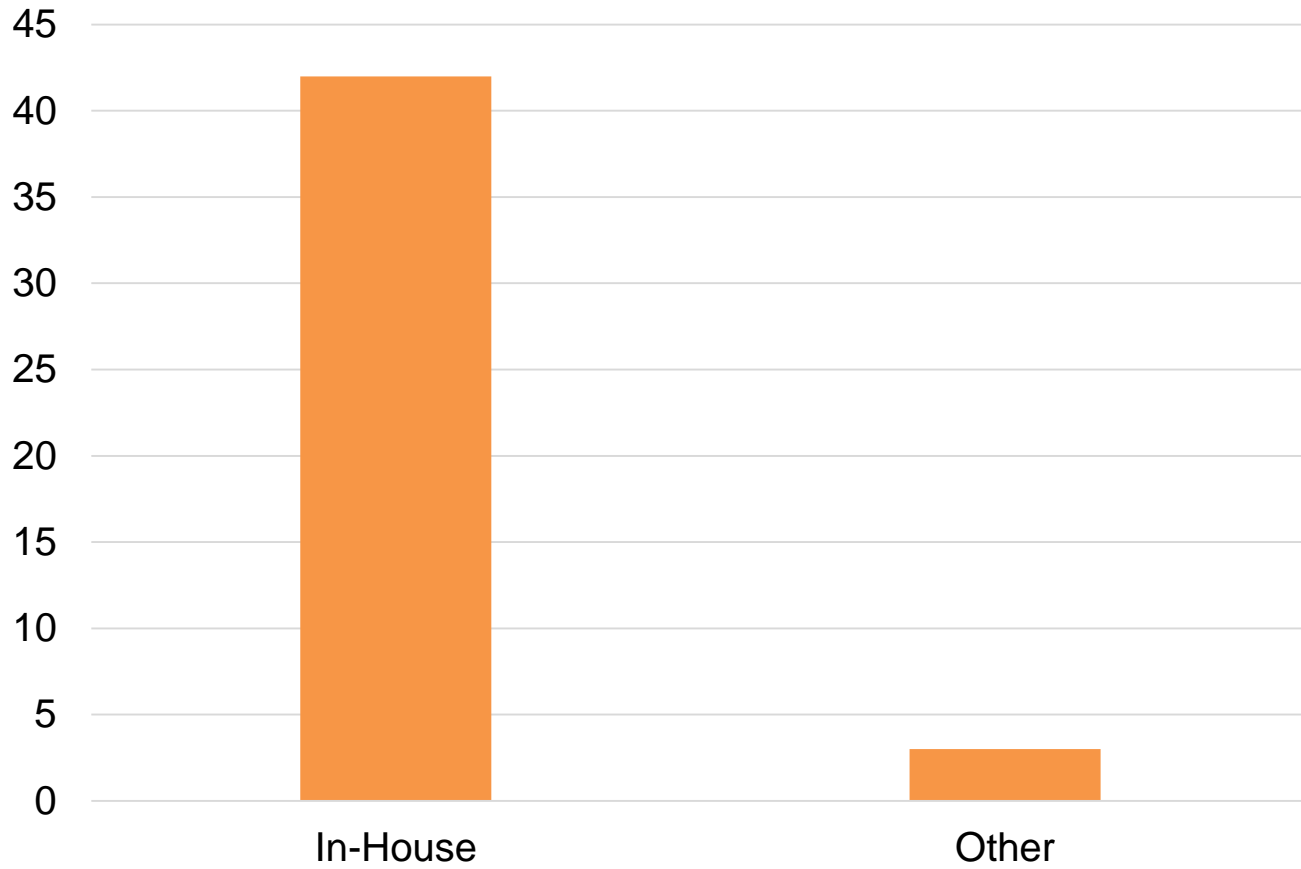
Infrastructure Deployment



Infrastructure Administration



Content Administration



Statistical Testing

Rank	Trait	χ^2	N	Sig.	Notes
1	Content Administration	73.20	45	Yes	More in-house. No contracted-out.
2	Deployment	68.35	42	Yes	Far more private. No public.
3	Broad Network Access	62.80	45	Yes	Far more yes.
4	Infrastructure Administration	48.53	45	Yes	More in-house.
5	Measured Service	34.68	44	Yes	Many more yes.
6	How Built	27.46	43	Yes	More in-house. No contracted-out.
7	On-Demand Service	23.33	45	Yes	Many more no.
8	Pooled Resources	9.73	45	Yes	More yes. Many more don't know.
9	Rapid Elasticity	7.14	44	Yes	More no.

Implications for Librarians

Most DOTs are still managing Web systems in-house

Content management is local

Resource pooling with other agencies very common

Bureaucratic organization common

Limited staff

Designed to control and limit operations

Subject to authority

Software appears to be compartmentalized

Conclusions

Sites redesigned on average every five years

Uncertainty exists

Join Web committees

Encourage site redesigns to help the library

Make friends with IT staff

Will follow-up with interviews over next month

Will examine barriers to best practices

Thank You!

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