White Paper

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Core Facility Market Analysis

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Understanding how core facilities operate

In early 2018, Agilent CrossLab conducted its eighth annual core facility management benchmarking study.

In this report, the term *cores* refers to service centers, shared facilities, and recharge centers at hospitals, universities, and research institutions.

We received 231 responses from managers representing over 50 different core types from over 100 institutions across the United States.

The study is conducted annually to provide a better understanding of how core facilities operate, focusing on core growth and utilization, financials, human resources, and overall performance.

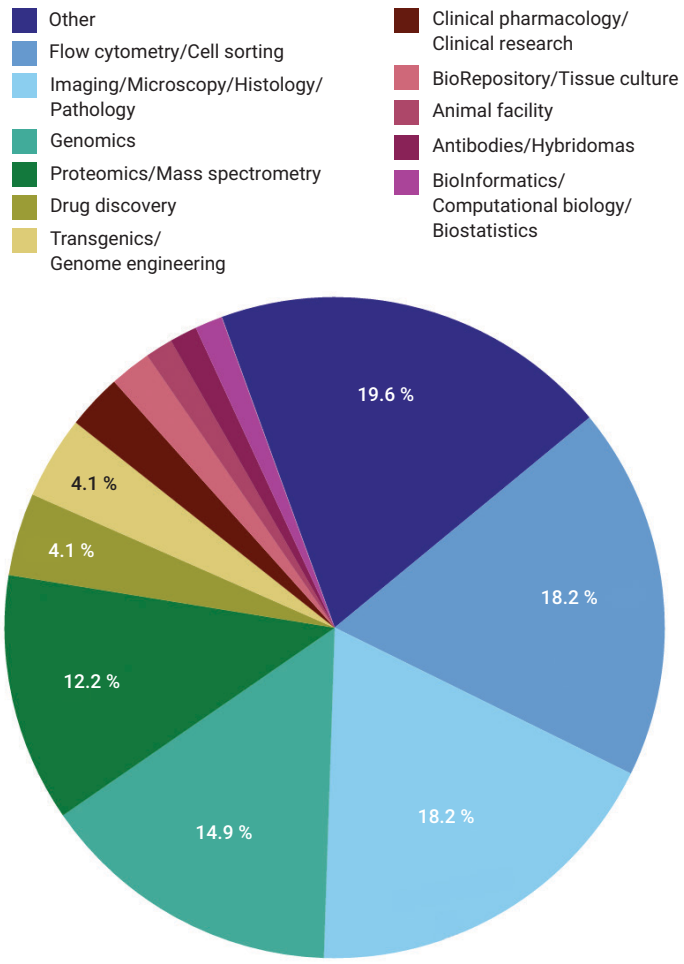
Executive summary

- Most institutions, 68 %, have their shared resource facilities structured with an overarching central administration, while 32 % do not have this structure.
- Sixty-six percent of institutions provide active internal subsidies to their cores, 19 % provide passive internal subsidization, and 15 % do not provide subsidization.
- On average, internal customers represented 72 % of the work performed in 2017; this is 4 % lower than the previous year.
- Labor was reported as the highest cost to cores, averaging 53 %. This is slightly up from 51 % in 2016, but the same as 2015.
- The average reported retention rate was 93 %. On average, shared resource facilities were staffed for approximately 55 hours per week, with an average of 5.4 employees per core.
- The most common methods for marketing the core were through the facility's website (99 %) and core facility tours (74 %).
- Fifty-eight percent of cores experienced growth in the number of unique customers in 2017; this is 3 % lower than in last year's study.

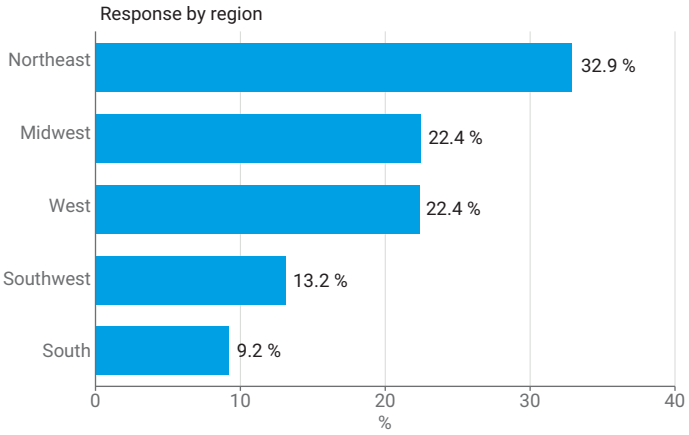
Distribution

There were respondents from 20 different technologies:

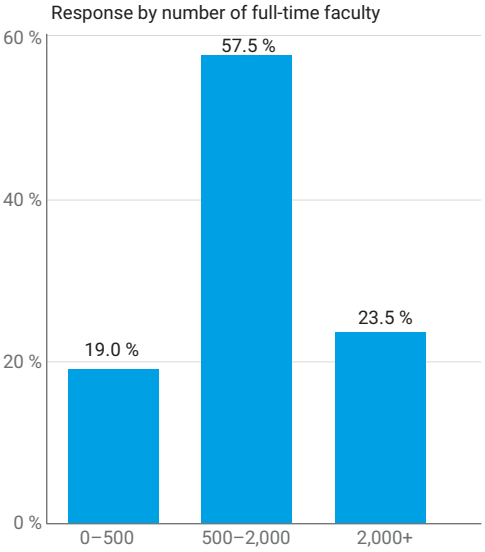
- *Other*, with a response rate of 19 %, includes viral vector, synthetic chemistry, X-ray crystallography, stem cell research, nano-structuring and characterization, nuclear magnetic resonance, environmental research, heterogenous catalysis, and atomistic simulations.
- Flow cytometry/cell sorting and imaging/microscopy/histology/pathology were the two highest respondents, with 18.4 % each.
- Genomics cores followed at 15 %.
- Proteomics/mass spectrometry was 12.2 %.
- For the remaining categories (drug discovery, transgenics/genome engineering, clinical pharmacology/clinical research, biorepository/tissue culture, animal facility, antibodies/hybridomas, and bioinformatics/computational biology/biostatistics), the response rate was 4.1 % or less.



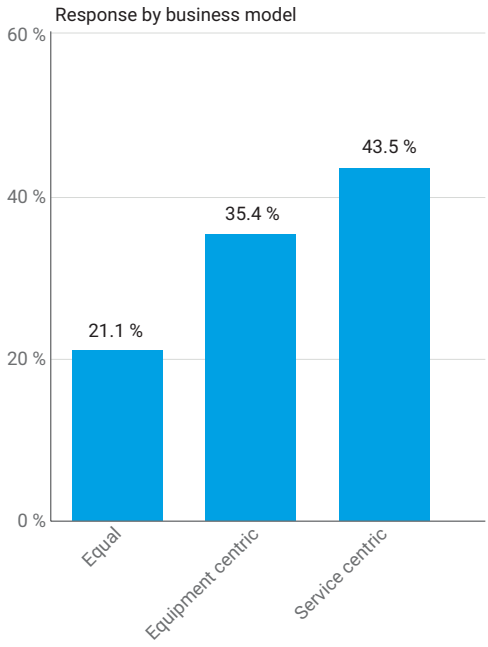
Across the United States, 33 % of respondents were located within the Northeast, 22 % were from the Midwest and West, 13 % were from the Southwest, and the remaining 9 % were located within the South.



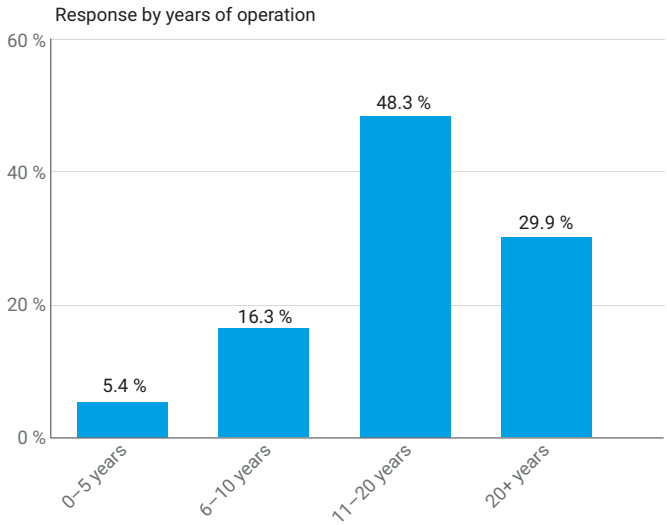
Most respondents, 58 %, work at midsize institutions with 500 to 2,000 full-time faculty. Large institutions, with more than 2,000 full-time faculty, made up 23 %, and small institutions, with less than 500 full-time faculty, rounded out the remaining 19 %.



Of those surveyed, 44 % defined their core as service centric, which means they provide a portfolio of scientific support services. Thirty-five percent reported their core as equipment/instrumentation centric, that is, they provide assisted and unassisted use of scientific equipment. The remaining 21 % reported their core as an equal mix of the two above business models.



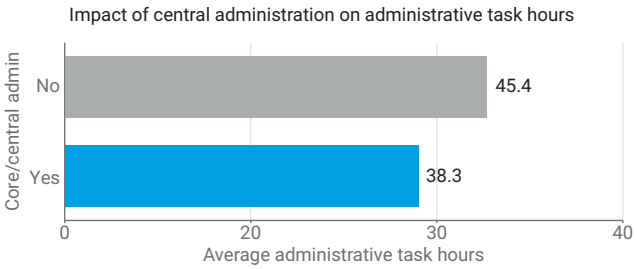
Most cores, 48 %, reported their business as being in operation for 11 to 20 years. Thirty percent of cores have been in business for more than 20 years, 16 % of cores have been in business for 6 to 10 years, and 5 % of cores are new to the business, with only 0 to 5 years of operation.



Institutional support of shared resource facilities

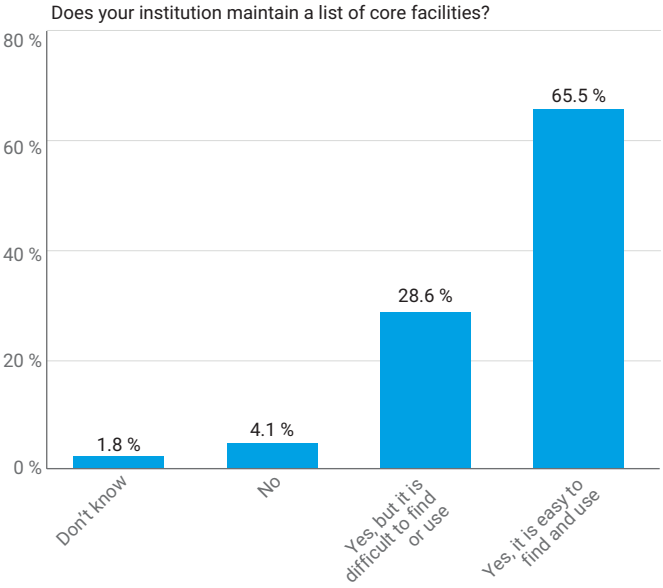
Central administration

Most institutions, 68 %, have their shared resource facilities structured with an overarching central administration, while 32 % do not. This structure impacted the number of hours that were spent on administrative tasks. In institutions that had a central admin structure, managers typically spent 38.3 hours per month on these tasks. Institutions that did not have central administration typically spent 45.4 hours per month on administrative tasks.



Core facility listing

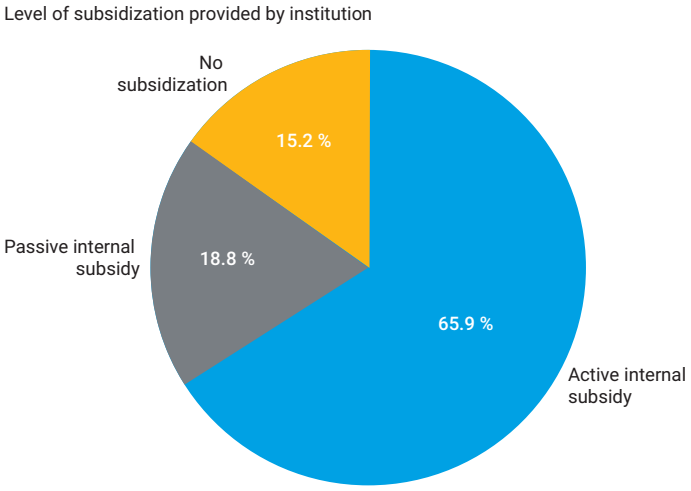
Most institutions, 66 %, support their shared resource facilities by maintaining a list of core facilities and ensuring that it is easy to find and use. Unfortunately, the remaining 34 % of institutions either maintain one, but it is not easy to use, do not maintain one, or the respondents were unsure.



Level of institutional subsidization

An active internal subsidy is one where the institution has internal funding to support the core facility. Allowable costs could be, but are not limited to, salaries or overhead costs. A passive internal subsidy is one where the institution allows deficits to accrue. The same pattern emerged again, where 66 % of the institutions provide active internal subsidies to their cores, 19 % provide passive internal subsidies, and 15 % do not provide subsidies.

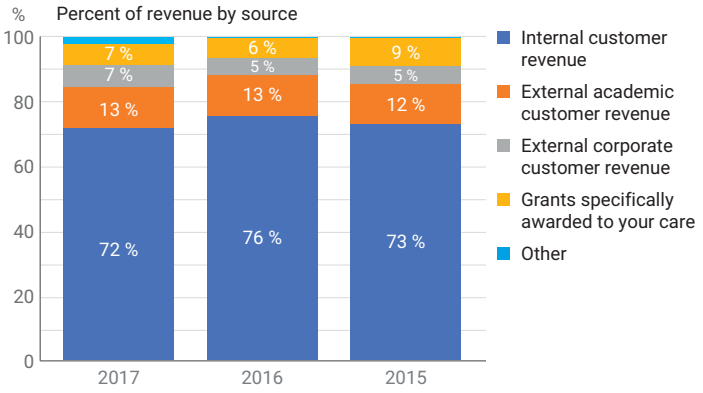
Based on these three data points, it appears that two-thirds of institutions are actively using their own infrastructure to support and encourage the success of their shared resource facilities.



Financial analysis

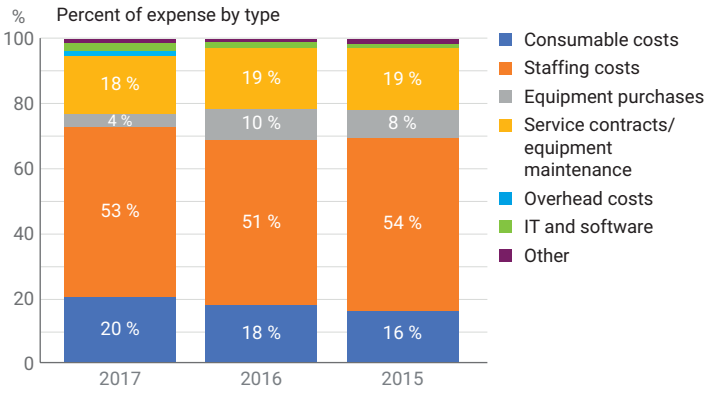
Customer type

Cores most commonly serve customers internal to their institution. On average, internal customers represented 72 % of the work performed in 2017; this is 4 % lower than the previous year. External academic customers remained constant, while external corporate customer revenue increased from 5 to 7 %. Grants awarded to the cores also increased from 6 to 7 %.



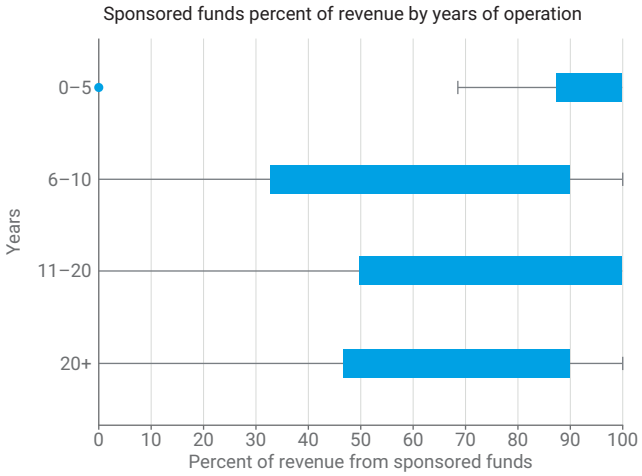
Expense type

When considering total expenses in 2017, labor was reported as the highest cost to cores, averaging 53 %. This is slightly up from 51 % in 2016, but the same as 2015. In 2017, the average cost of maintenance contracts was 18 %, consumables was 20 %, the cost of equipment was reported as 4 %, and IT and software was 2.5 %. Overhead costs were reported as 2 %, with any remaining costs listed as *other* at 1 %. Overall, cores are spending much less on equipment, as previous years were 10 % and 8 %, respectively. Alternatively, cores are spending more on consumables, IT, and software.



Sponsored funds

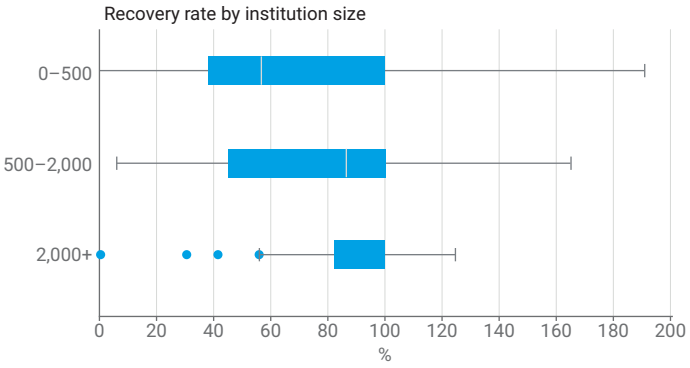
The percent of revenue derived from sponsored funds was examined by years of operation. For the newest cores (those in operation for five years or less), the median percentage of sponsored funds was 93 %. The median percentage of sponsored funds for the remaining cores was 80 %, regardless of how many years they had been in business.



The following three graphs examine the rate at which expenses of the core are recovered from revenue collected by the core based on institution size, years of operation, and core business model.

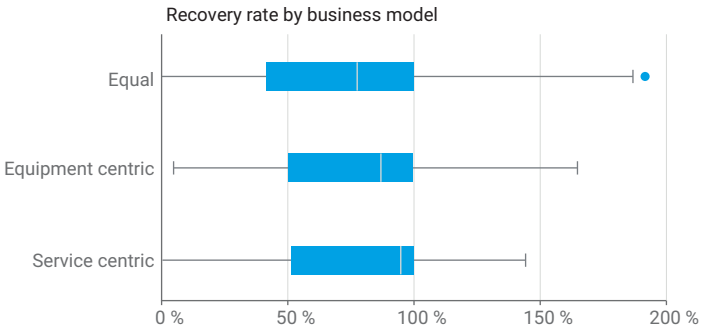
Recovery rate by institution size

In examining the recovery rate by institution size, the highest average recovery rate, 100 %, was attributed to the largest institutions—those with more than 2,000 full-time faculty. The recovery rates then fall according to institution size. Those with 500 to 2,000 full-time faculty average 86 % recovery rate, and those with less than 500 full-time faculty average 56 % recovery rate. In theory, a larger institution would mean a larger customer base, but in reality, cores should be spending within their means, regardless of customer base. This seems to indicate that cores at smaller institutions are spending large amounts to compete with cores at larger institutions, yet they do not have the customer base to recoup those costs.



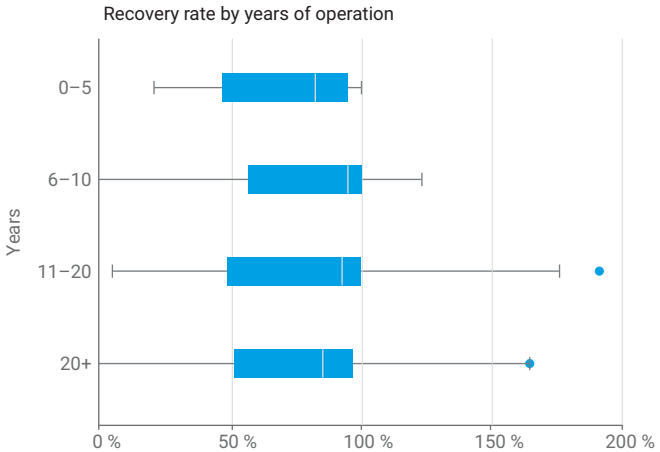
Recovery rate by business model

When examining the recovery rate by business model, the highest average recovery rate, 95 %, belonged to a service-centric core. The equipment-centric cores were not far behind, with an average recovery rate of 87 %. The lowest average recovery rate belonged to an equal blend of service and equipment, at 77 %. Most likely, cores can charge higher fees for a service-centric business, as there is analysis and staff time involved, whereas with an equipment-centric business, the core would only charge for use of the machine.



Recovery rate by years of operation

Lastly, we examined the recovery rate based on years of operation. Cores that had been in business for 6 to 10 years had an average recovery rate of 95 %, followed closely by cores that had been in business for 11 to 20 years, with an average recovery rate of 93 %. The remaining two categories, 20+ years and 0 to 5 years were also closely matched, at 85 % and 83 % respectively. This seems to indicate that cores may hit a sweet spot of efficiency when they are in business from 6 to 20 years.



Human resources

The average reported retention rate was 93 %. On average, shared resource facilities were staffed for approximately 55 hours per week, with an average of 5.4 employees per core. As far as benefits offered to their employees, 35 % of cores offered continuing education opportunities, and 81 % of cores offered publication opportunities. Additionally, in welcoming their staff to the team, 42 % of cores had established onboarding programs.

To normalize the data for cost of living impact, salary compensation data for each geographical region were collected and compared. Table 1 shows the results.

Table 2 summarizes years of experience data that were collected and compared by business model.

Only 30 % of institutions have established core-specific job families and descriptions when hiring personnel in core facilities.

Table 1. Salary compensation by geographical region.

Average annual salaries (USD)	Technician	Lab/ core manager	Core director/ central admin	Staff scientist	Facility manager/ admin
Northeast	56,649	104,882	108,663	70,281	94,812
Midwest	48,524	79,750	109,238	76,937	94,167
West	46,917	79,000	120,792	69,600	80,857
Southwest	49,389	74,818	110,909	74,136	104,000
South	41,900	64,921	108,600	62,500	None reported

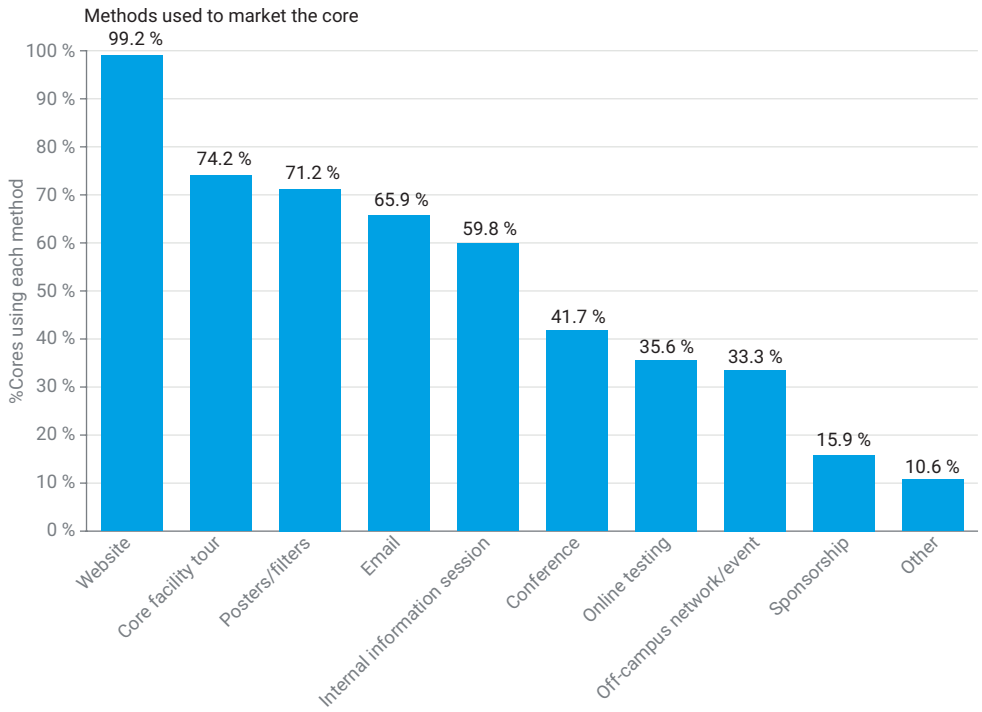
Table 2. Years of experience data for positions.

Average years of experience	Technician	Lab/ core manager	Core director/ central admin	Staff scientist	Facility manager/ admin
Service centric	3.0	8.0	9.6	4.1	4.4
Equipment centric	2.2	8.4	11.1	4.1	3.5
Equal mix	2.0	6.7	10.9	4.0	5.1

Marketing and customer growth

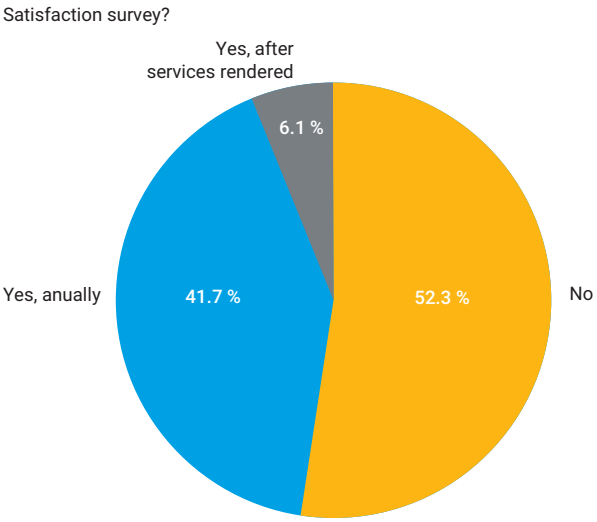
Marketing the core

Cores tend to market their facility in numerous ways, the most common methods being the facility's website (99 %) and a core facility tour (74 %). Other core marketing techniques include posters/fliers (71 %), email (66 %), internal information sessions (60 %), conferences (42 %), online listings (36 %), off-campus network/events (33 %), sponsorships (16 %), and other (11 %), which includes seminars, workshops, and social media. Using the facility website to market the core has been the top method since 2014.



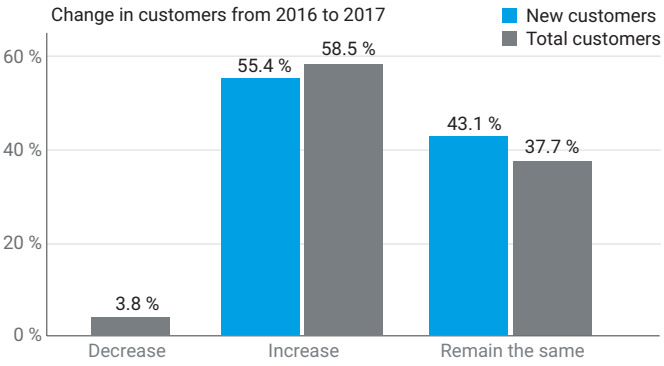
Delivering a satisfaction survey

Core managers were queried if, and when they delivered a satisfaction survey. Nearly half, 48 %, of respondents deliver a satisfaction survey, with 42 % annually, and 6 % after services are rendered. The remaining 52 % do not send a satisfaction survey to their customers.



Customers

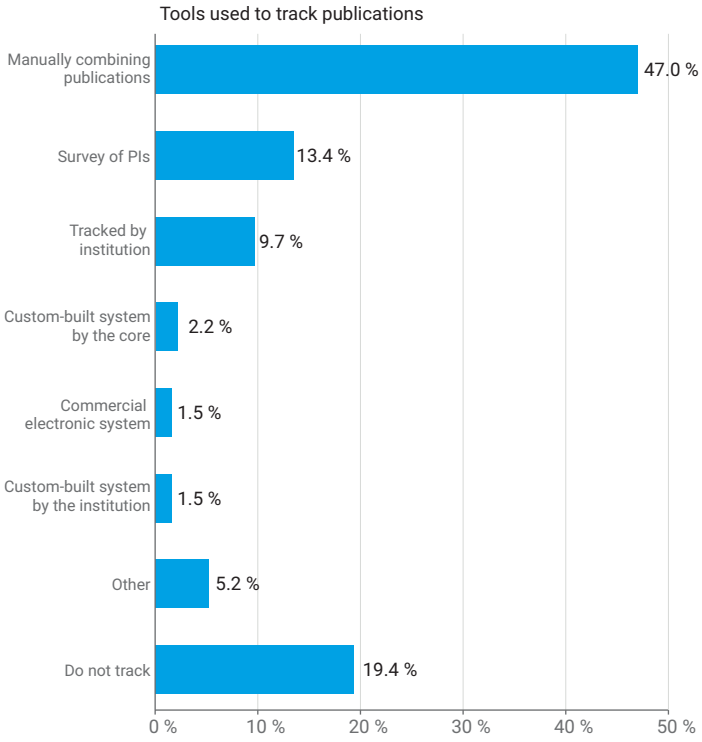
Fifty-eight percent of cores experienced growth in the number of unique customers in 2017; this is 3 % lower than last year's study. This has remained largely consistent over the past seven years. Additionally, 56 % of cores experienced growth in the number of new customers to their core in 2017. Typically, 50 % to 60 % of cores experienced some type of growth over the past year.



Administrative management

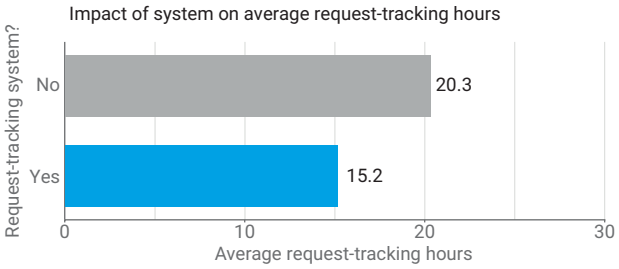
Tracking published research

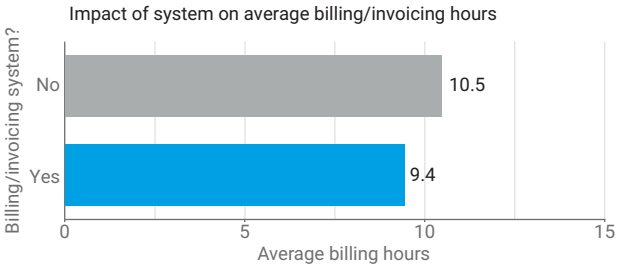
The most commonly reported methods of tracking publications are manually combing PubMed and other common publications (47 %), and surveying principal investigators (13 %). Ten percent said their institutions track publications for them, and 2 % said they use a custom-built system to track publications. Reduced from the previous year, 19 % of respondents said they do not currently track research publications.

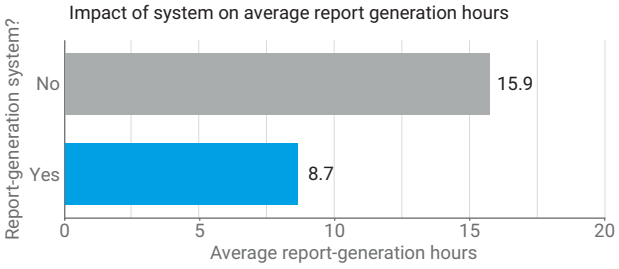


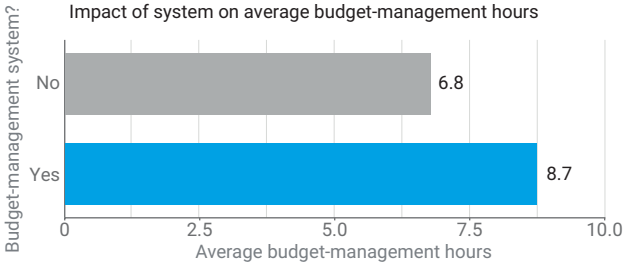
Time spent on administrative tasks

We examined the impact of having an electronic system on hours spent per month performing administrative tasks. For three of the tasks (tracking requests, generating reports, and billing/invoicing), we found that having an electronic system to perform these tasks reduced the time spent each month by 5.1, 7.2, and 1.1 hours, respectively. Interestingly, using an electronic system to manage a budget added almost two hours per month. We looked at several drivers that may be contributing to this increase but could not discern the source based on our data.









Respondents were asked if they used Lean Six Sigma or other process improvement methods to improve the efficiency of their laboratory, and 92 % had not. Additionally, they were asked whether cores were using external laboratories for testing, perhaps in an effort to alleviate workload. Again, 92 % of cores were not using this business practice, while 8 % were.

Summary

The 2018 data revealed trends similar to those found in 2017: marketing approaches, customer make-up, and expense distribution were comparable if not the same as in the previous year. However, due to adding several demographic questions this year, a deeper analysis of a few metrics yielded some interesting findings.

One of the fields that was analyzed in more depth was the level at which institutions support their shared resource facilities. Overall, approximately two-thirds of institutions surveyed reported some level of support to encourage the success of their cores, either in the form of managing a list of cores that was easy to find, providing an overarching central administration to improve efficiencies, or actively subsidizing the core facility's expenses.

Another field we analyzed in depth was hours spent on administrative tasks per month. Two drivers impacted this category. Having a central administration equated to an average of 7.1 hours saved per month on administrative tasks per core. For an institution that may have multiple cores under this central administration, this could result in multiple full-time employees saved per year. Alternatively, for certain tasks such as tracking requests, generating reports, and billing/invoicing, having an electronic system to perform these tasks reduced the time spent each month by 5.1, 7.2, and 1.06 hours, respectively. An institution could save multiple FTEs worth of time each year using a central administration organization and using electronic systems to support administrative tasks.

Overall, the findings this year indicate that shared resource facilities grow and flourish when provided with active support from their institutions. In response to this support, cores can provide their customers—both internal researchers and external scientists—with efficient processes and high-level technology. It will be interesting to see how this trend of support continues.

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