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iLab Solutions
Save money. Save time. **Accelerate research.**

# The 2014 Core Facility Benchmarking Study

## Conducted by iLab Solutions

## September 24, 2014

For additional information, please contact iLab Solutions at
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# Introduction

iLab Solutions conducted its 4th annual Core Facility Benchmarking study in the first half of 2014. There were 240 responses, representing over 40 different core types from 135 institutions. The surveyed individuals directly manage cores, service centers, shared facilities, and recharge centers at hospitals, universities, and research institutions. For this report, "cores" is the general term used when referring to all of these facility types.

This study is conducted annually in an effort to provide a better understanding of how core facilities operate, focusing on core growth and utilization, as well as the common challenges core managers face today.

- Of those surveyed, 54% of cores experienced growth in the number of customers in 2013; this is a 13% lower growth rate than in 2012.
- In 2013, 52% of core income came from customer revenue; revenue from institutional support was about 28%. Consistent with previous surveys, the percentage of income from core customers is rising, whereas, the percentage of income from institutional support is decreasing.
- In 2013, core managers said they spent approximately 53 hours per month serving the customer, whereas they only spent about 25 hours per month on independent research.
- In 2013, managers who used electronic systems for administrative tasks spent an average of 12 hours less per month (22% less) on these activities compared to those who use other means, such as manual entry and spreadsheets. Administrative tasks included tracking equipment usage, billing and invoicing, creating usage reports, managing budgets, and tracking workflow.
- There was over a 7% increase in satisfaction with electronic systems as compared to other tools used to manage core operations. Other tools include manual entry, simple databases, and spreadsheets.
- 84% of cores charge different pricing for varying customer types (e.g., internal, external, corporate); this is about the same as reported in last year's survey.
- As with 2012, in 2013 most services performed by cores were for internal customers (76%); however, this number has decreased by about 7%. The numbers for external academic remained nearly the same (10%), whereas work for those with special academic relationships and external corporate customers has gone up (10% and 4%, respectively).
- Of cores surveyed, 59% said they adjust their rates annually, 27% adjust their rates at other time increments, and 15% said they have never adjusted their rates.
- 57% of cores said there was no tenure for core personnel at their institution, 32% said core directors have tenure, 13% said core managers have tenure, and 5% of cores surveyed said technicians have tenure.
- The average number of customer labs served in 2013 is 10 per core FTE.

- The following were cited as the top challenges for core managers:
    - Acquiring funding & managing the budget
    - Managing workload and having enough time to get the work done
    - The administrative duties of managing the core

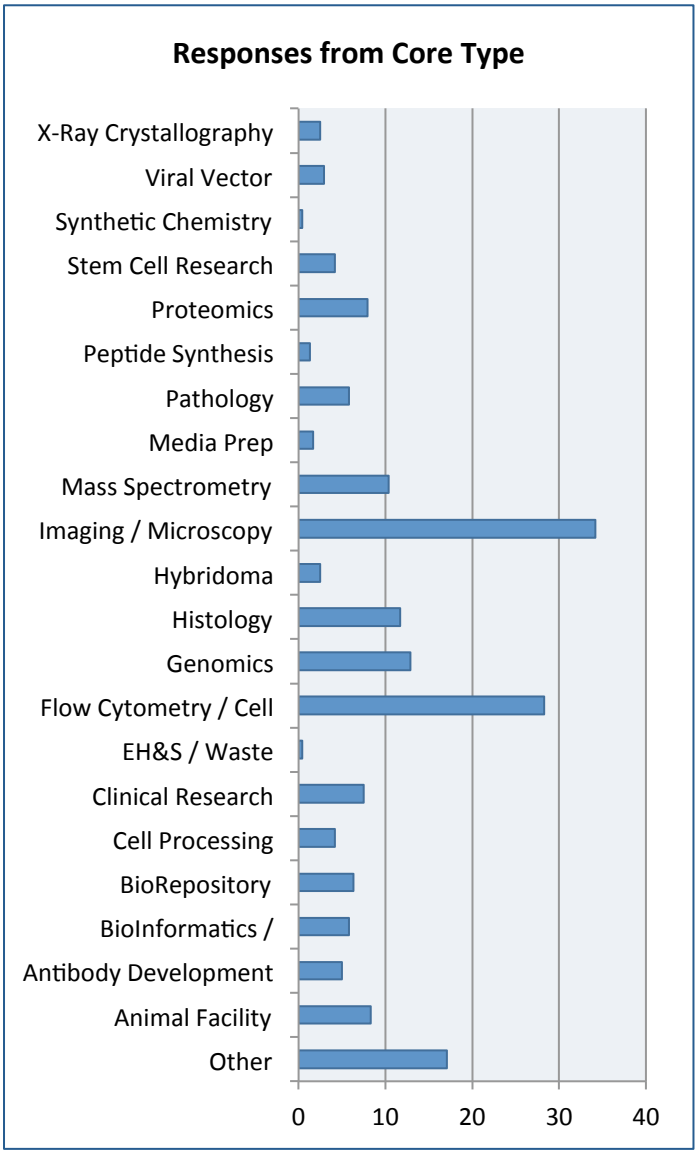
  Additional challenges mentioned involve sustainability, customer management, equipment management, institutional support, personnel management, customer recruitment, independent research, proper resources, increasing usage, compliance, and staying relevant.

The following pages provide an analysis of the data collected.

## Distribution

iLab distributed the survey in early February, 2014 to core managers and directors at hospitals, universities and research institutes. During this time, iLab also distributed the survey through press release listing sites, social media sites, and its corporate website. Furthermore, institution administrators who became aware of the survey sent the survey to their institution core managers. The survey was open for 11 weeks. All data was compiled and the averages are presented in the following pages. The conclusions presented here may not represent any single core.

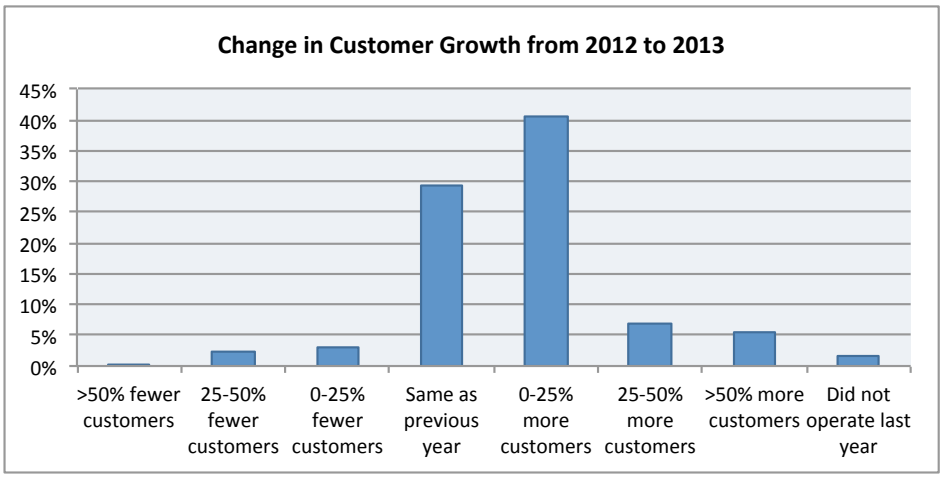
In total, 240 core managers and directors responded to the survey. These individuals come from 135 different institutions throughout the North American, European, and Asia Pacific regions and represent over 40 core types[1]. **36% of respondents said they manage cores with multiple foci or manage multiple cores.** In these cases, the responses were only counted once for the overall survey analysis.




[1] "Other" includes cores such as Biochemistry, Biocontainment, Carbon 14 Isotopes, Central Purchasing Agent, CGMP Therapeutic Drug Manufacturing, Chemistry, Drug discovery, Hematology and Chemistry Analyzer, High, Human Embryonic and Induced Pluripotent Stem Cells, Labware processing, Machine Shop, Metabolic Studies, Micro&nano Fabrication, Molecular Biology, Necropsy, Neurobiology, Cellbiology, Nuclear Magnetic Resonance Spectroscopy, Optical Spectroscopy and Separations, PET Nuclear Pharmacy & Cyclotron Facility, RNA Interface, Robotics/Automation, Throughput and Spectroscopy, Transgenics and ES Cell technology, Translational Research, and Virus propagation.

# Results of Multiple Choice and Quantitative Questions

## CUSTOMER GROWTH

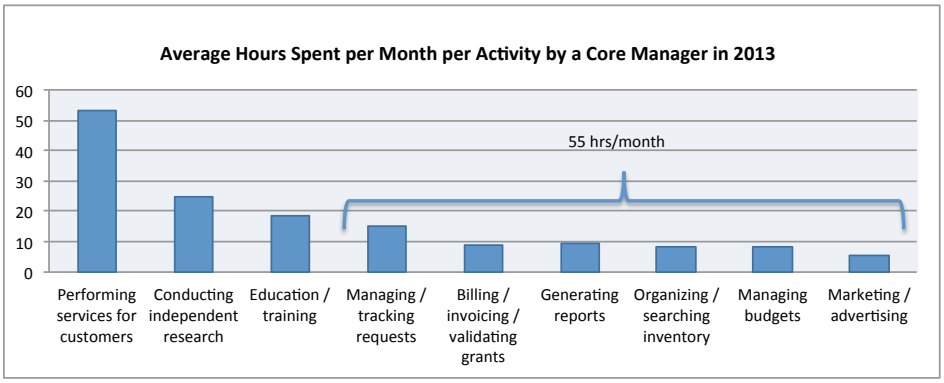



**Customers: 54% of cores experienced growth in the number of customers in 2013**; although, this rate is significant, this is the lowest rate of growth since the study's inception in 2011. Of cores surveyed, the customer growth rate is 13% lower than in last year's study. Furthermore, from 2011 to 2012 28% of cores said they had significant growth (>50% or more customers), whereas, in this year's study, from 2012 to 2013, only 6% said they had significant growth (>50% or more customers) in the number of customers.

**On average, there are a reported 10 labs served per core facility FTE.**

## CHARGING & CORE ACTIVITIES

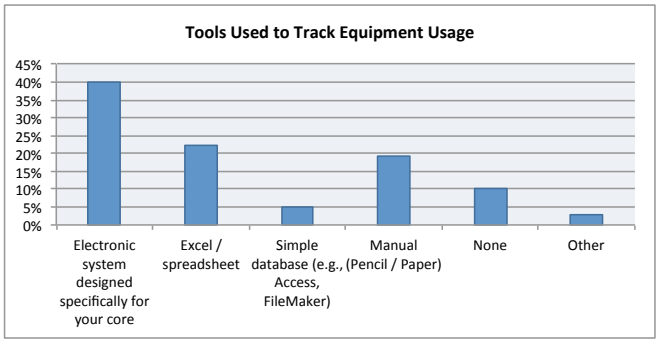
**Customer Type:** Cores most commonly serve customers internal to their institution. **On average, internal customers represented 76% of the work performed in 2013**; this is 8% lower than the previous year. The numbers for external academic remained nearly the same (10%); whereas, work for those with special academic relationships and external corporate customers have increased (10% and 4%, respectively).

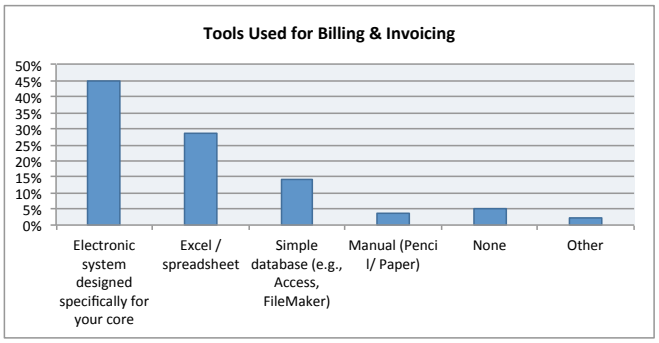


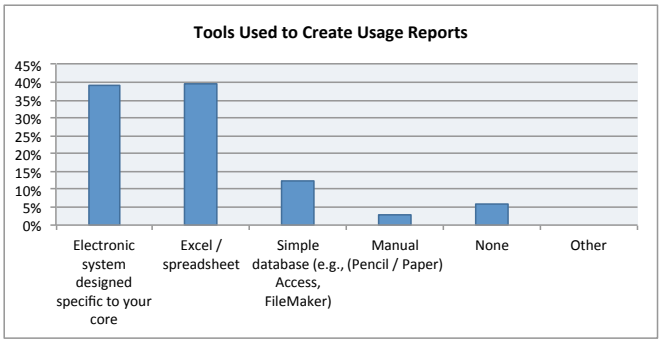

**Time Spent: Core managers reported that in 2013 the majority of their time was spent on conducting services for customers (53 hours per month).** This is a decrease from 66 hours in 2012, but similar to the 2011 report of about 52 hours per month. They also reported spending 9% more time on independent research as compared to last year**.** Although the majority of time continues to be on research related activities, **cores reported spending 55 hours per month on managing the core business.**

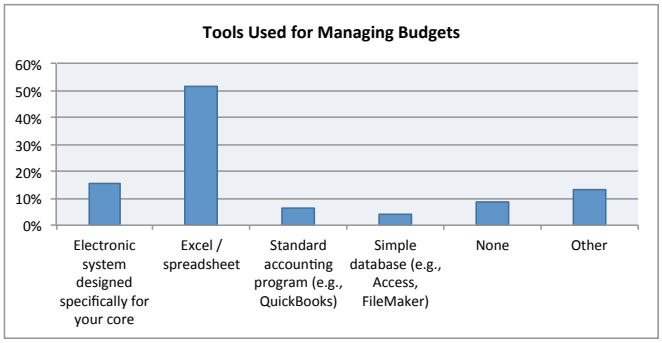
## OPERATIONAL TOOLS & UTILIZATION

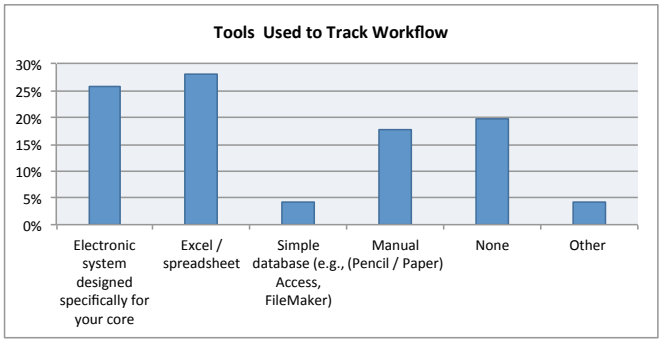
**Business Tools:** Electronic systems is the most common tool used for tracking equipment usage, creating usage reports, and billing and invoicing. Spreadsheets are most commonly used for managing budgets, and both electronic systems and spreadsheets are frequently used for tracking workflow within the core facility.



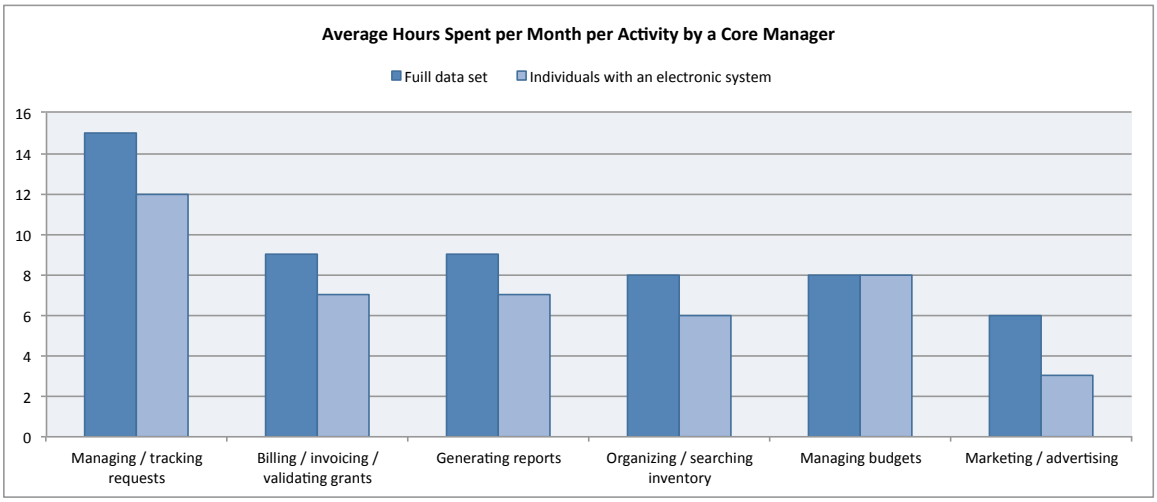



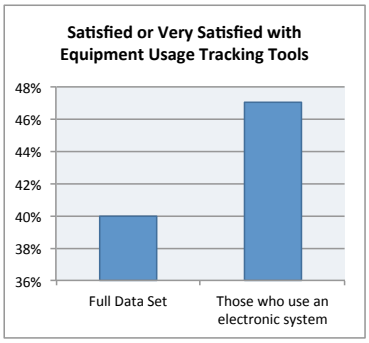



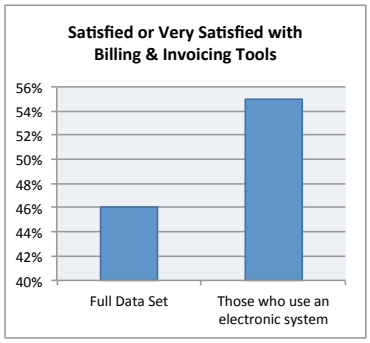



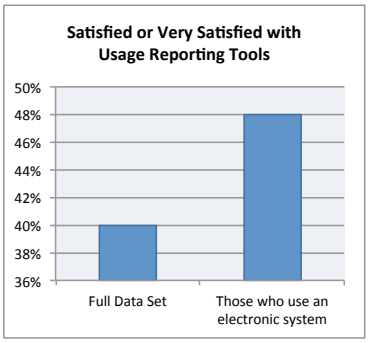
**Time Spent Running the Core with Electronic Systems:** The average time spent on the administrative tasks of running a core was 55 hours per month for the full data set. When isolating responses from those who use an electronic system, the average time dropped to 43 hours per month. This is a 22% decrease of the time spent on the administrative tasks of running a core.

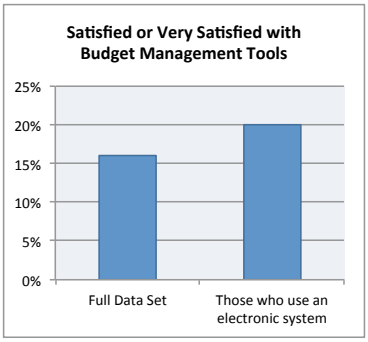


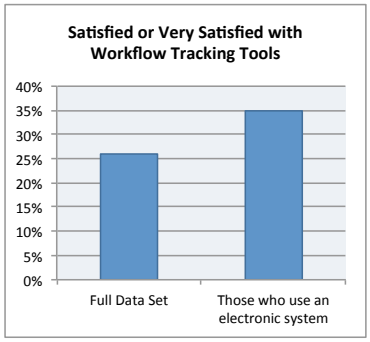

When Isolating responses of those who use an electronic system for tracking equipment usage, billing and invoicing, creating usage reports, managing budgets, and tracking workflow, the satisfaction rate increased by over 7%.



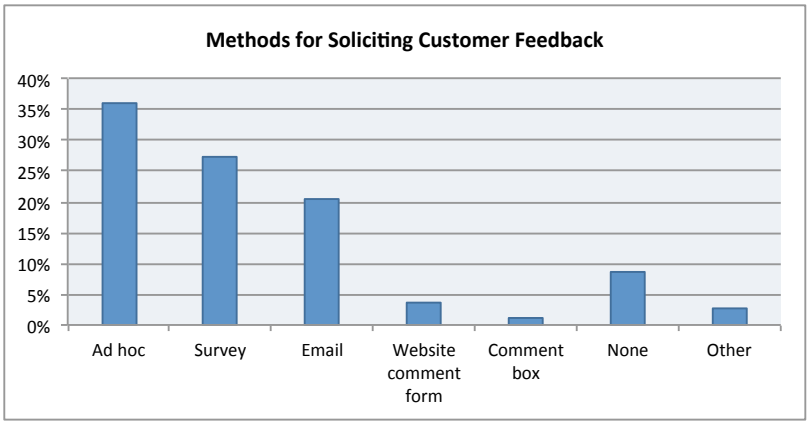



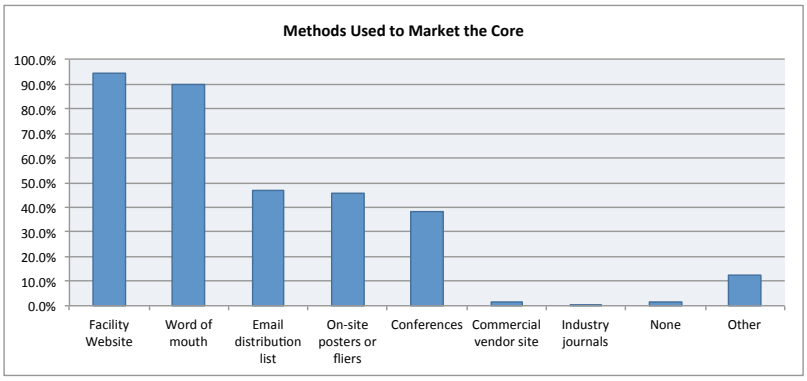



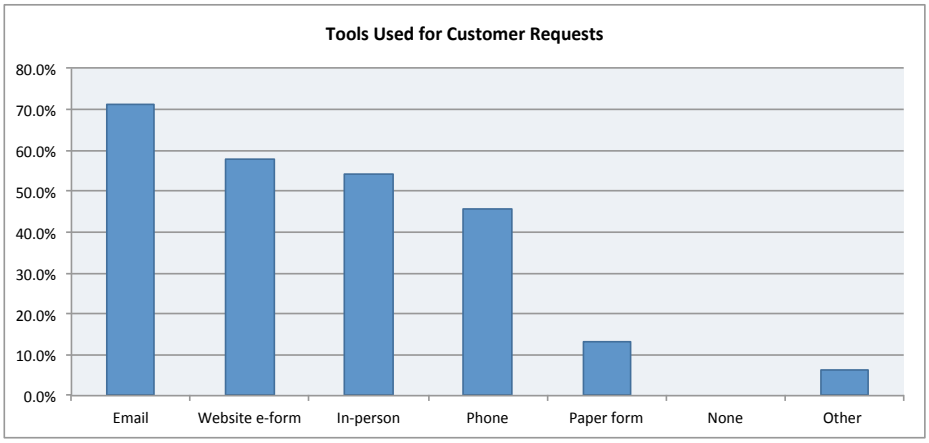
**Satisfaction Rate and Time**: As compared to the full data set, those with a higher satisfaction rate in the tools they use cited 10% more of their time was spent training and performing services for the customer, and there was a 5% decrease in time spent on performing administrative tasks.



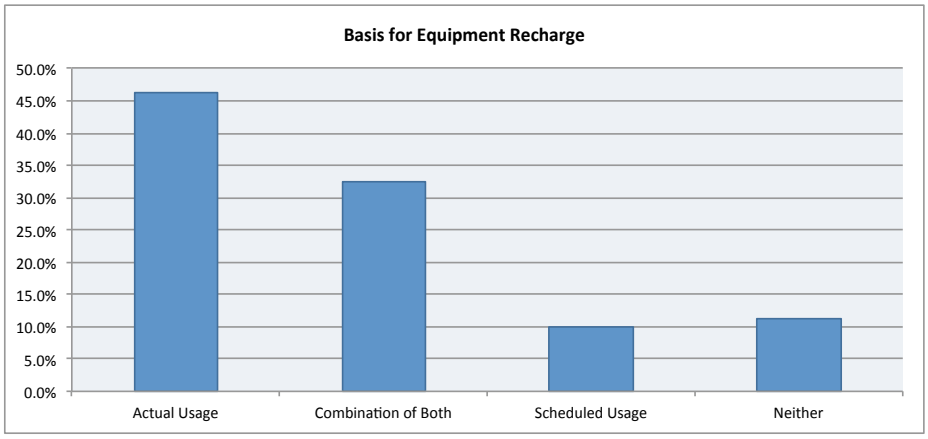

**Customer Feedback:** Ad hoc has risen as the top method for soliciting customer feedback (36%), followed by surveys (27%) and over email (20%).




**Marketing the Core:** Cores tend to market their facility in numerous ways, the most common methods are core website (95%) and word of mouth (90%). Other ways cores market their services include email distribution (47%), on-site posters (46%), conferences (38%), and other (13%), which includes seminars and workshops, facility tours, on-line databases, and referrals.



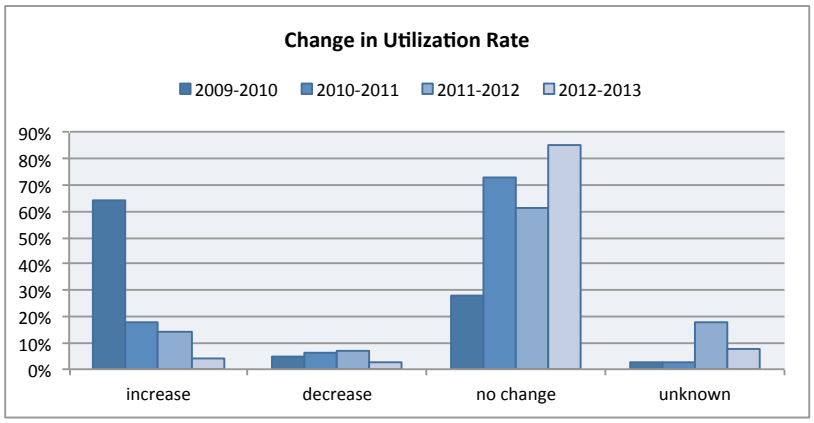

**Receiving Customer Requests:** On average, **cores received 71% of their service requests or reservations by email.** Other important methods include website e-form (58%), in-person conversations (54%), phone (46%), and in paper form (13%).



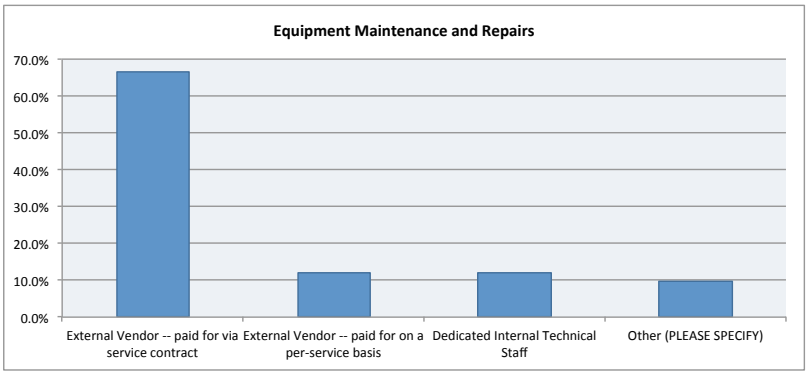

**Equipment Recharge:** For equipment-based cores, **46% said they base recharge on actual equipment usage.** 10% said they charge for only scheduled time, and 33% said recharge is based on a combination of actual and scheduled usage. 11% of cores surveyed said they did not charge for actual usage or reserved time. Some of the alternatives provided were: "It is calculated into all services using the equipment," and "We do not charge for equipment services at this time."

**Utilization Rate:**

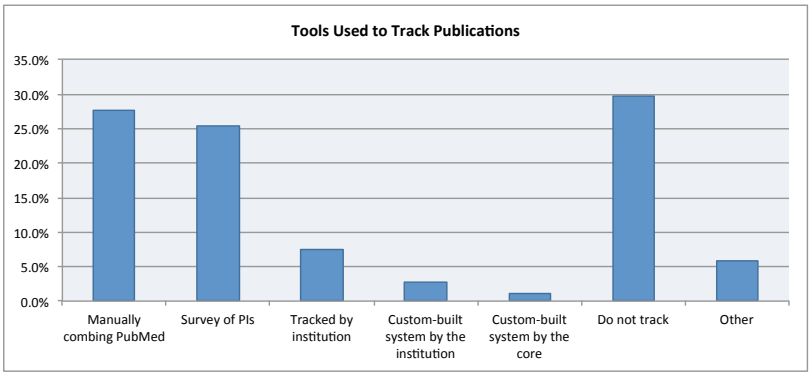
**A majority of respondents (85%) reported no change in utilization from 2012 to 2013**, and a much lower percentage (4%) reported an increase of change in utilization rate. This is the lowest increase in utilization since iLab began its annual Benchmarking Study in 2011. The downward trend in utilization is consistent with previous years. Since the study's inception, the greatest increase of year-to-year utilization occurred from 2009 to 2010 with a rate of 64% growth.



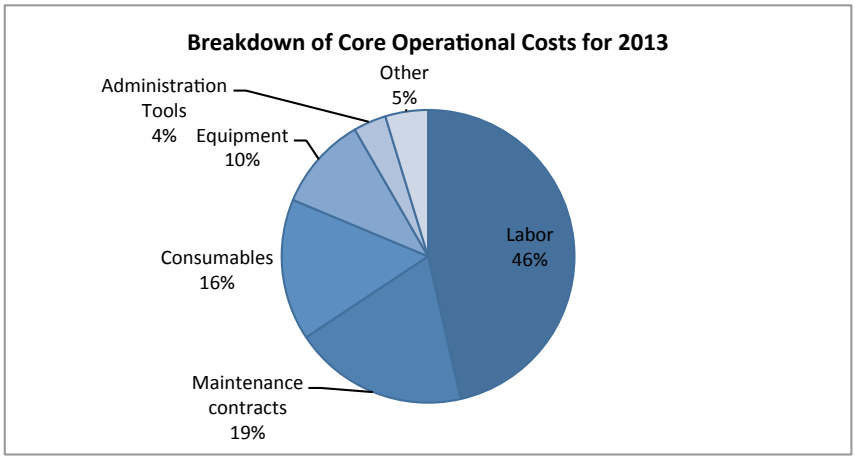

**Equipment Repairs: 67% of cores surveyed use external vendors, paid via a service contract, for maintenance and repairs.** 12% said they use an external vendor, paid on a per service basis. 12% said they have dedicated technical staff, and 10% said they use "other" means for maintenance, which mainly included a combination of both external vendors and internal technical staff, dependent upon the equipment type.



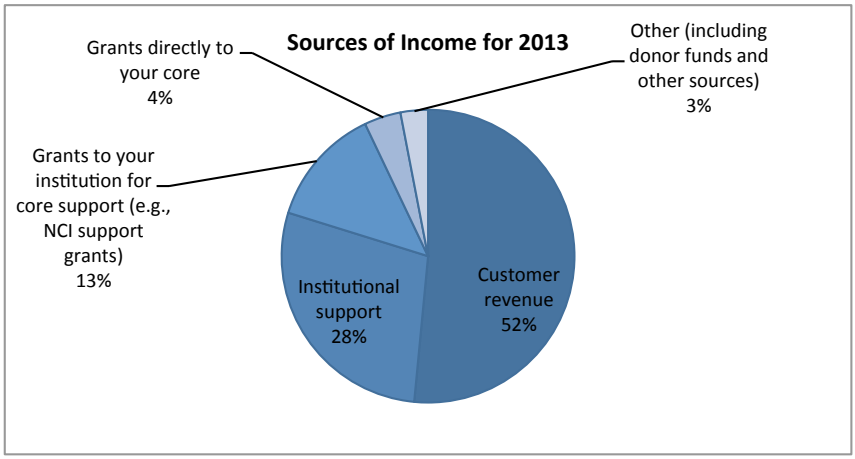

**Tracking Published Research: The most commonly reported methods of tracking publications are manually combing PubMed and other common publications (28%) and surveying PI's (26%)**. 7% said their institution tracks publications for them, and 4% said they use a custom built system to track publications. **30% of respondents said they do not track research publications at this time**.



## FUNDING & EXPENSES

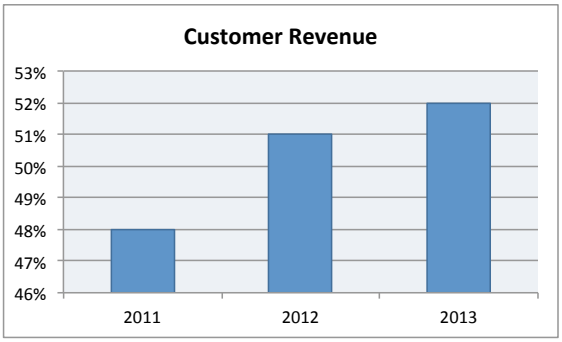


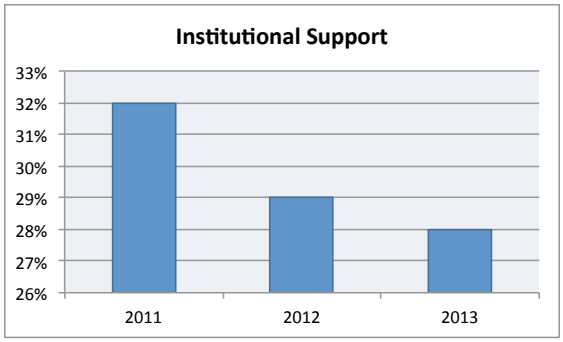

**Costs: When considering total expenses[2] in 2013, labor was reported as the highest cost to cores, averaging 46%.** This is down from 52% in 2012. In 2013, the average cost of maintenance contracts was 19%, consumables was 16%, the cost of equipment was reported as 10%, and administration tools accounted for 4% of operational costs. This number is up from 2% in 2012.




**Income: In 2013 the bulk of core income came from customer revenue averaging at 52%. The secondary prominent revenue source is institutional support (such as subsidies) averaging at 28%.** The remaining 20% of income came from grants and other funding sources.

Since 2011, the reported percentage of cores' annual income that comes from customer revenue is increasing, whereas the percentage of institutional support is declining.

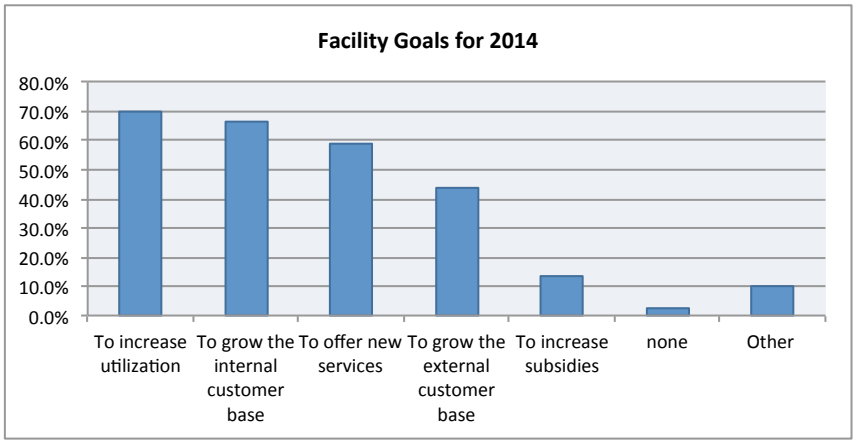



[2] Capital expenses are not included in this data.

## FACILITY GOALS

**Goals: Cores' top goals for their facility in 2014 are to increase utilization (70%) and grow their internal customer base (67%).** Other goals reported are offering new services (59%), growing external customer base (44%), and increasing center subsidies (14%). 10% of responses cited "other" goals, which included increasing grant funding, publishing more papers, adding new pieces of equipment, and enhancing educational offerings.



## Summary of Results

When asked, "What are your biggest challenges as a core manager," generating revenue was cited as the top challenge. More specifically, core managers are concerned with "shrinking budgets" and "maintaining a viable business as national funding lags." Comparing the data from 2011, 2012, and 2013, institutional funding for cores also appears to be shrinking year-over-year. Since 2011, institutional funding as a percentage of total revenue has decreased by over 4%.

"Finding the funds to cover the [loss in] subsidy is increasingly hard," wrote one core manager. In an environment where institution and government funding is decreasing, core sustainability becomes reliant on other revenue sources, such as customer revenue. In 2013 customer revenue accounted for the bulk of income for the typical core. This number has grown by 4% since 2011. But "Maintaining enough business to generate supporting funds," one manager wrote, "is the biggest challenge I have."

This sentiment appears to be a common thread among core managers. A majority of respondents (85%) reported no change in core utilization from 2012 to 2013, and a much lower (4%) reported growth. This is the lowest rate of increase since iLab began its annual Benchmarking Study in 2011 with the greatest increase occurring from 2009 to 2010 at a rate of 64%.

In light of this trend, a majority of cores (70%) said their top goal was to increase utilization. One core manager pointed out that this is not an easy task. "It is difficult identifying the needs of the researchers and making sure people know what we can do for them." Another core manager wrote, "Balancing the demands of customers, who often are finding it hard to get funding, with the demands of management, who want high cost recovery, while trying to compete against research groups (local and external) for lucrative projects and new equipment is increasingly difficult."

It takes time and resources to devise and implement plans to increase core usage, and many core managers said they do not have enough time for their workload. "A wide variety of administrative tasks takes time away from data analysis and scientific and technological progress," wrote one manager. Another said, "The lack of proper systems and tools for managing core facilities, tracking, and reporting is causing an overburden of administrative duties." Core managers are feeling the stress of the inefficiencies of running a core while they are expected to maintain a sustainable core facility resource.

To address this issue, some core managers are turning to electronic systems to manage their core operations. According to the study, those who use automated systems for administrative tasks, such as tracking equipment usage, billing and invoicing, creating usage reports, managing budgets, and tracking workflow, spend an average of 12 hours less per month on these tasks as compared to those who use other means, such as manual entry and spreadsheets. One core manager said, "[I am] operating essentially a small business within the institution with a lack of support for the business side of the equation." Core managers are tasked with providing a high quality and sustainable scientific resource, and they need the tools to accomplish this. Finding ways to help core managers more efficiently manage

core operations will enable them to focus more attention on providing those quality services and grow their core usage.

## About iLab

iLab Solutions is a leader in providing web-based management services to academic research institutions, with customers that include leading NIH-funded universities, research hospitals, and independent institutes. iLab leverages a scientific advisory team comprised of active PIs with research backgrounds from Brigham & Women's Hospital, Dana-Farber Cancer Institute, EMBL, Harvard University, Huntsman Cancer Institute, Mt. Sinai School of Medicine, Stanford University, University of Melbourne, Vanderbilt University, and Yale University. The iLab leadership team includes executives with experience from ABRF, Dana-Farber Cancer Institute, Deloitte, Facebook, Genentech, Intel, IRB Barcelona, McKinsey, Microsoft, Nationwide Children's Hospital, The Ohio State University, Research Institute of Molecular Pathology, Roswell Park Cancer Institute, SAIC, and Vanderbilt University.

In March 2013 iLab signed a partnership with Vanderbilt University where the CORES software platform was developed in 2001 and updated and maintained on an ongoing basis. This partnership brings together the two most sophisticated and broadly used solutions for core facility management. Over the course of 2013 and 2014, the joint team has been incorporating the best features of the CORES software into the iLab platform, and will continue to leverage Vanderbilt's academic perspective to help guide future development.

The combined iLab/CORES solution serves over 1,000 core facilities across 100 research institutions in eight countries, including 30 of the top 50 recipients of NIH funding. iLab has extensive experience providing enterprise-level solutions at major research institutions. These solutions include integrations with institutional financial systems (e.g., SAP, Oracle, PeopleSoft, Lawson, Banner, IFAS, etc.) and identity management systems (e.g., Active Directory, Shibboleth, etc.). iLab's dedicated implementation team and established implementation processes supports a high adoption rate and fully trained personnel resulting in effective use of the system.

iLab offers a suite of web-based tools for academic research management. The modules available include core facility service request management, enhanced sample management functionality (including a sample processing management tool), equipment reservation and usage tracking, billing and invoicing, reporting, and lab requisitioning and spend tracking tools. Modules to support Product Cores, study management, and equipment lockout capabilities are currently under development and will be available for wide deployment in 2015. The software interface allows each user a consolidated view of their recent activity across all modules as well as the ability to search across all equipment, services, and cores in the system.

In order to ensure stability, security, scalability, and responsiveness, iLab conducts all software development, application maintenance, deployment, and user support internally. This internally resourced approach results in a close relationship between iLab and our customers and ensures iLab can rapidly address customer needs.

# Appendix A *(Details of Open-Ended Survey Responses)*[3]

*Q1. What are your biggest challenges?*

**1. Funding & Budget: (21% of responses)**

Re-setting pricing for services
Cost recovery
Maintaining enough business to generate supporting funds
Judging and budgeting for future needs
Keeping the core viable as national funding lags
New equipment funding
Keeping income balanced with expenses
Managing balance between tenure track research and economics of managing a core facility
$$$$$$
Cost management for new technologies
Money
Finding funds to upgrade instrumentation
Funding for additional instrumentation (multicolor bench top is unique and running 14 hours per day every day)
Funding
Declining federal research dollars
Maintaining a large enough customer base in the current low funding environment.
Funding new equipment
Cost recovery
Match researchers needs with the budget
Limited budgets
Bringing in enough money
Budget constraints
Budget
Obtaining funds to upgrade or replace aging equipment
No way to carry over significant money from year to year to make large/expensive repairs that occur on occasion.
Get funding for FTE´s
Raising Funds
Revenue
Meeting your budget or full cost recovery
To get new subside money
Funding for staff and equipment. Funding for researchers to support their projects.
Keeping up with the cost of new DNA sequencing equipment.
Shrinking budgets

[3] A majority of open-ended responses are included in Appendix A. Some responses were combined to eliminate repetition.

Managing budget
Our cores were designed to provide heavily subsidized access to a range of technologies and skills, for a large number of investigators across several nearby institutions. But finding the funds to cover the subsidy is increasingly hard. (Particularly since our institution started charging us rent on the space!) There are few funding sources for this sort of dispersed help provided to many investigators. Most grants seem to be aimed at ever more specific and defined scientific objectives, as opposed to providing support for a community.

**Time and Workload: (12% of responses)**
Finishing projects in a short time of 1-2 weeks, keeping up with project demand-turn around, distractions from customers, researching articles--other things demanding of time not dedicated to bench work, which is where our revenue is based.
Making sure the multiple projects are managed so that they finish on the estimated time specified to the customers
Handling multiple projects at a time.
Managing a variable work load
Providing service in a timely fashion.
Time management
Time
Keeping it all together - too many tasks for one person - Need additional staff, but unable to hire due to budget constraints.
Prioritizing various tasks
Managing a heavy workload with few personnel
Lack of time due to being understaffed
Finding time to do accounting and billing
I do everything. I need help.
Finding time for education/training
Managing multiple projects.

**Administrative Duties: (12% of responses)**
Operating essentially a small business within the institution with a lack of support for the business side of the equation. This results in the wearing of many hats for accounting, HR, business development and many more purposes.
Making sure that all the tools and processes needed for doing the work and managing the core are in place
Managing a small facility
Creating new business
Lack of proper systems and tools for managing core facilities, tracking and reporting is causing an overburden of administrative duties.
Lack of proper management software
Integrate research and management activity
Integration with financial systems
Managing 3 sorters, 9 analyzers, and an automacs with only 1 staff member in 2013

Providing information to many departments in many formats/spreadsheets.
Managing all of the projects manually
Managing external projects
Reformatting data for billing purposes. Lots of fancy systems that don't talk to each other
A wide variety of administrative tasks take time away from data analysis and scientific and technological progress
Project management
Workflow, time to payment
Reporting
Managing the core facility well
Increasing paperwork
Billing, project management, external project contract management

**Sustainability: (9% of responses)**
Achieving sustainability
Irregular demand - feast or famine
Customer retention
Installing and offer new techniques
Keep the high-level service running
Not being an impediment to research but instead remain helpful and a valuable service.
Achieve User Satisfaction
Balancing the demands of customers who often are finding it had to get funding with the demands of management who want high cost recovery (often the same people). Trying to compete against research groups (local and external) for lucrative projects and new equipment is increasingly difficult
Satisfaction from customers and staff
Keep and improve service quality
Find the right Balance between Research and Service
Keeping cost downs while providing quality service
Growing utilization in a fund-restricted environment.
Determining those technologies that will be required in the future and the funds to obtain them.
Keeping up with demand.
Price the services the way that would be still attractive, but we would not be underpaid.

**Customer Management: (8% of responses)**
Keeping track of who is using what and when. We have a lot of external customers and we need them to use iLab
Working with folks that are outside of our lab who do not understand lab workflow
Lack of timely accurate information for tracking services, expenditures and revenue and for generating reports
-Training independent users
People management
Educating the users in best practices

Educating users about flow cytometry.
Educating clients, explaining results
Educating customers.
Developing and keeping users - developing local talent and keeping local talent
Getting participation
Dealing with customer requests/questions.
User education
Communication with user base - determining needs

**Equipment Management: (7% of responses)**
Acquiring and maintaining new equipment
Maintaining equipment,
Scheduling
Training users and the need for a better online scheduler
Supporting old and obsolete equipment.
Service and maintenance of aging equipment
Keeping the instruments running
Outdated equipment
Financing instrument upgrades and service contracts
Technical support for different types of machines
New/upgrade equipment to meet user demand
Keeping equipment state of the art in same.

**Institutional Support: (7% of responses)**
A true promise of support from the institution
Getting the administration to appreciate that core facilities are #1 necessary and #2 don't make money "on the books" but make a ton of money for the institution by keeping projects funded
Dealing with the faculty oversight committee on administrative and budget issues. Fox guarding the henhouse situation really.
The lack of institutional support (as opposed to departmental) and the bureaucracy from the administration, which is almost "anti-core" in its ideology
Convincing administration that the core facility is research infrastructure and they should provide money for salaries
Institutional hurdles and costs
Communicating core needs to my director
Deputy Director of all cores refuses to communicate with the core managers and is easily influenced by the User Committee. There is no support.
Lack of institutional support; we only receive institutional support from an NCI P30 grant to our Cancer Center. They have been reducing their direct support to us, and putting the burden on the facility at a time when users' grants are being reduced/terminated and our facility use is declining because of that
Although we have 40% of our use from non-Cancer Center users, the institution as a whole does not provide any ongoing support - salary or otherwise.
Surviving my director's ideas after our "merger"

Dealing with infrastructure problems.

**Personnel Management: (7% of responses)**
Managing employee potential and motivation
Communication with co-workers
Managing personnel
Managing workload of technicians
Staffing
Getting adequate staffing levels for the work coming in.
Hiring GOOD employees!
Keeping good personnel, and keeping personnel satisfied with their job duties.
Acquiring, maintaining and training staff
Low salaries
Lack of career paths for core staff

**Recruiting Customers/Marketing: (5% of responses)**
Advertising and getting feedback from users
Finding PI's with adequate funding that have appropriate science to use the core
It is difficult identifying the needs of the researchers and making sure people know what we can do for them –
Marketing
Recruiting
Expanding customer base
Growing Internal and external client base
Growing customer base internally.
Improving Faculty interest and usage

**Independent Research: (3% of responses)**
Finding time for independent research
Balance between customer requests and finding time for new innovations or protocols
Certain company's business model (BD) seems to aim at cornering the market and stiffing independent research.
Preserving dedicated time to science while balancing increasing administrative tasks
Managing the competing priorities of my service role and my own research program.

**Resources: (3% of responses)**
Laboratory information system
Specimen tracking
Tracking projects
Management of sample flow (database curation)
Mining data from the lims.
Maintaining scientific excellence and customer satisfaction with limited resources

**Usage: (2%)**

Increasing usage and educating users

Maintaining maximum productive uptime

Increasing utilization

**Complilance: (1%)**

User compliance with applicable rules and regulations

Compliance

**Staying Relevant: (1%)**

Getting enough demand for each technology (animal MRI, PET/CT, SPECT/CT)

Making advanced technologies available to users

Overcoming poor experimental design, garbage in garbage out.

**Other:**

Interpersonal communications

Making the core facility look better on paper for the bean counters.

Bring the facility to life in 2014

I would like to know how other institutions routinely collect information on publications and grants received using core data. How do you get users to faithfully participate in reporting that information and in acknowledging the core on papers?

Balancing inventory vs. need

Space

Find experienced operators