

The 2011 Core Facility Benchmarking Study

Conducted by iLab Solutions

June 24, 2011

This document contains references to “iLab Solutions.” Please note that substantially all of the assets of “iLab Solutions” were acquired by Agilent Technologies in August 2016. For more information, go to www.agilent.com/chem/ilab.



Agilent Technologies

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Introduction

iLab Solutions conducted the first annual Core Facility Benchmarking Study in the first quarter of 2011. The study was based on a survey of individuals who directly oversee cores, service centers, and recharge centers at hospitals, universities, and independent research institutions. The goals of this study were to provide an understanding of core facility management and operations practices, as well as trends in core growth and utilization.

In total, 246 individual core managers and directors from over 100¹ institutions, representing more than 30 different core types, responded to the survey. Their responses paint a picture of health of cores in the scientific research community. This study shows that business growth and utilization rates increased from 2009 to 2010 (60% of cores with growing volume, 7% experiencing declines). The survey also reveals a number of strong patterns in core operations:

- Most cores charge for services (93% of cores);
- Chargeback income provides the most important revenue stream (49% of revenues);
- Core managers tend to spend the largest portion of their time directly providing services to their customers (56 hours per month);
- Labor constitutes the largest area of expense (50% of expenses);
- Most cores still rely on basic spreadsheets (e.g., Excel) to manage administrative tasks;
- The most common means of staying at the forefront of the core's scientific interest are through word-of-mouth and conference attendance;
- Social media have made only limited inroads in the core community; and
- Most cores do not track the publications which result from their services.

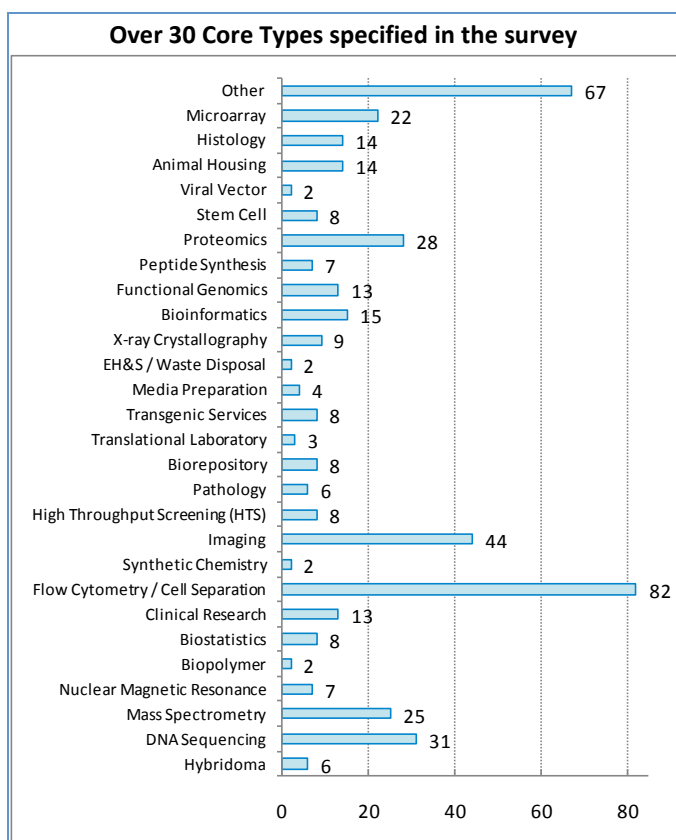
The following pages provide an analysis of the data collected along with some commentary to help make sense of the individual responses to the survey.

¹ Some responders did not reveal which institution supports the core(s) they manage so it cannot be determined the exact number of institutions represented.

Methodology

iLab first distributed the survey in early January 2011 to institutional administrators at a large number of hospitals, universities, and research institutes, who in turn provided the survey URL to individual core managers and directors at their institutions. iLab sent a second email to a second group of institutions three weeks later, in late January 2011. In mid-February, iLab provided the survey link to the ABRF Group on LinkedIn and the CAN-CC listserv. Finally, a core facility director shared the link with the *Purdue Cytometry Message Board*. The survey was open for 12 weeks, closing on March 25, 2011. The long open period and wide survey distribution allowed for many core managers and directors involved with a large variety of scientific specialties to provide input. All data was compiled and the averages are presented in the following pages. The conclusions presented here may not represent any single core across the board.

In total, 246 core managers and directors responded to the survey. These individuals come from over 100 institutions in North America, Europe and Asia Pacific, and represent more than 30 core types². Approximately 50% of responders manage cores with multiple scientific foci or manage multiple cores. In these cases, the responses were only counted once for the overall survey analysis but were used to represent all applicable core types in the individual core type analysis (see the Appendix for core type charts). Additionally, specific core types that fit under more general terms such as Genomics or Proteomics were combined for the core type comparisons.

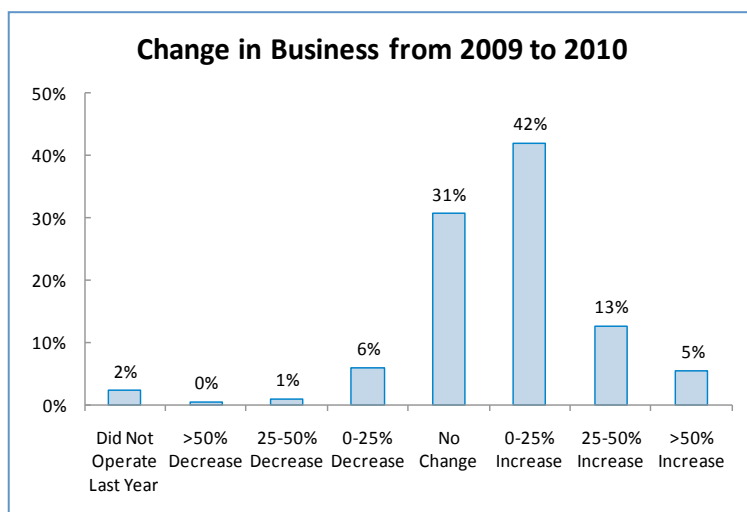


² "Other" includes specific kinds of Genomics cores such as NextGen Sequencing and PCR, specific kinds of Proteomics cores such as Protein Expression and Amino Acid Analysis, various kinds of Microscopy, general sample processing, and Zebrafish cores, to name a few.

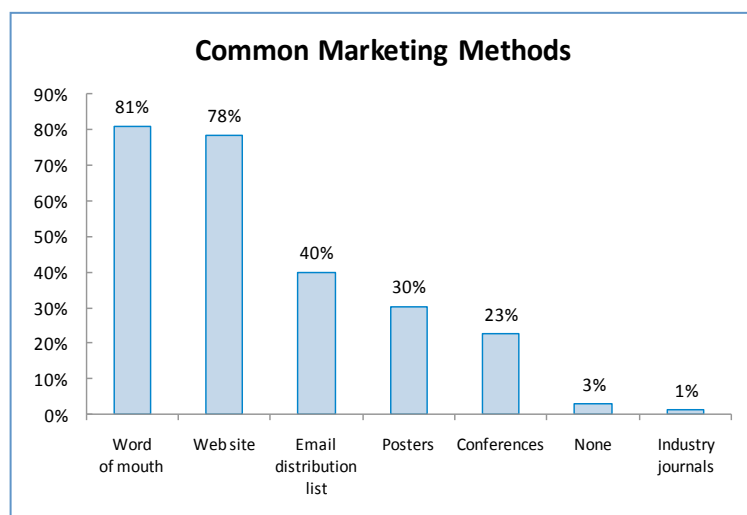
Results

SERVICE GROWTH AND PRICING

Growth: The first part of the survey asked core managers and directors about the growth of their business as well as utilization rates. **Nearly 60% of core managers or directors relayed that they saw an increase in business for their facility in 2010 versus 2009; only 7% experienced a decrease in business.**



42% of cores surveyed said their usage increased by 0 to 25%, while a further 18% of those surveyed estimated a growth in volume *greater* than 25%. The utilization rates also enjoyed growth, with 65% of cores reporting an increased utilization rate (see Appendix for the Change in Utilization Rate from 2009 to 2010 chart).



Marketing: The majority of Core managers and directors devote little time to actively marketing their cores. **81% of the survey responders rely on word-of-mouth from their customers and colleagues and 78% of the survey responders rely on their institution's website to indirectly market for them.** Some cores also use an email distribution list, poster, and conferences where they can network with other researchers. When comparing the kind of marketing tools a core uses to grow their business, no form of marketing appeared to have a consistently positive or negative

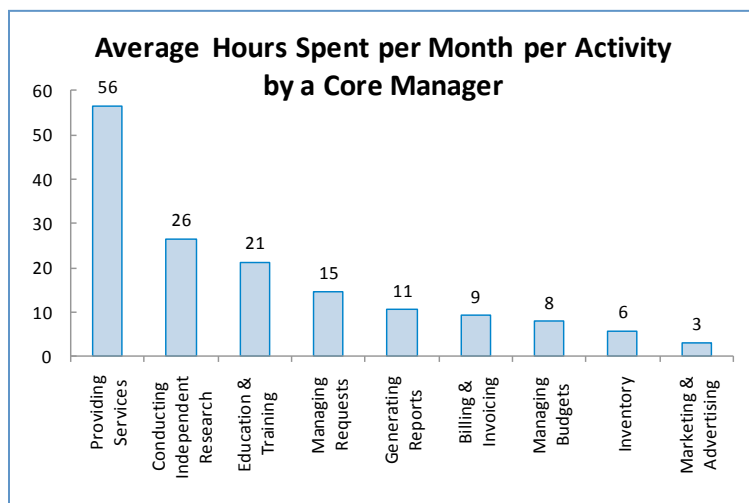
impact on core growth (see Appendix for Effects of Marketing on Business Growth chart).

Pricing: Throughout the scientific research sector, cores typically charge for services rendered (only 7% of those surveyed do not charge). Among those who do charge, the industry standard is to charge different prices or have various subsidies based on customer type (for example, internal, external, and corporate). On average, internal customers make up nearly 80% of the customer base. The most common methods for determining the prices charged to core customers are internal calculations (66% of cores use this method) and an analysis of competitor's prices (25%). Rarely, software tools and

external consultants (4% and 3%, respectively) are used by cores to determine service prices (see Appendix for Price Calculation Method chart).

TIME ALLOCATION

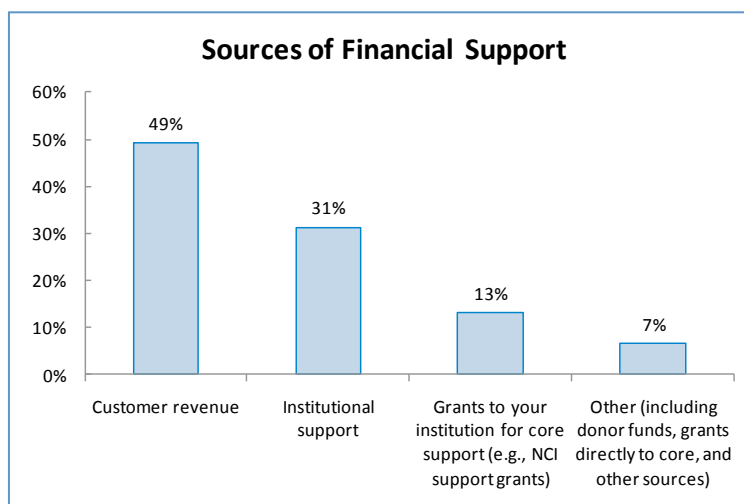
Time Spent: The survey asked core managers and directors to estimate how many hours they spent on a variety of core-related tasks each month. **On average, core managers spend more time (56 hours per month) performing assays, running instruments, and providing other services to their customers than on any other single task.** The rest of their time each month is collectively spent on conducting independent research, education and training, managing and tracking requests, generating reports, managing the core's financials (invoicing and billing, managing the core's budget), managing inventory, and marketing the core.

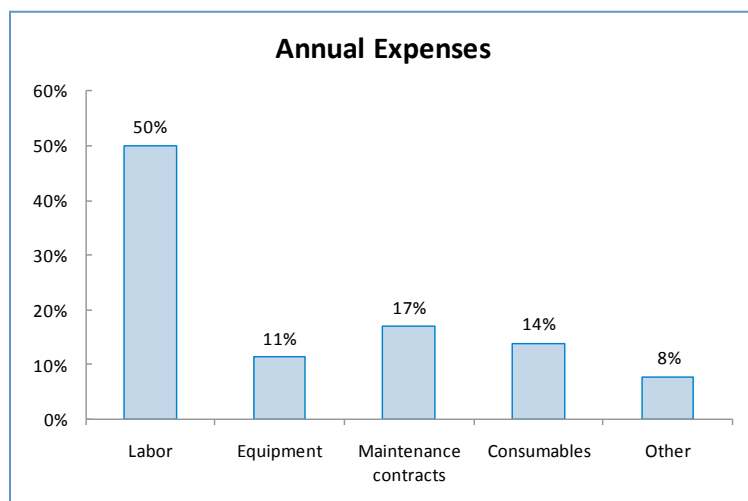


performing assays, running instruments, and providing other services to their customers than on any other single task. The rest of their time each month is collectively spent on conducting independent research, education and training, managing and tracking requests, generating reports, managing the core's financials (invoicing and billing, managing the core's budget), managing inventory, and marketing the core.

REVENUE AND EXPENSES

Financial Support: Customer charge-backs are the main funding source for cores, service centers, and recharge centers representing nearly 50% of total funding. Additionally, the institutions or departments often provide an average of over 30% of core funding, while 13% of funding comes from institutional grants, such as the NCI's Cancer Center Support Grant. The remaining 7% of the funding comes from donors, other grants given directly to the core, or other non-disclosed sources.





Expenses: The largest expense to cores is the cost of labor³. On average, 50% of a core's expense is paying for the salaries and benefits of their employees. The other half of a core's expenses are buying and maintaining equipment (capital purchases not included), paying maintenance or service contracts, buying consumables, and other general expenses (e.g., facility rent, paying for compliance studies, and attending conferences).

USE OF TECHNOLOGY

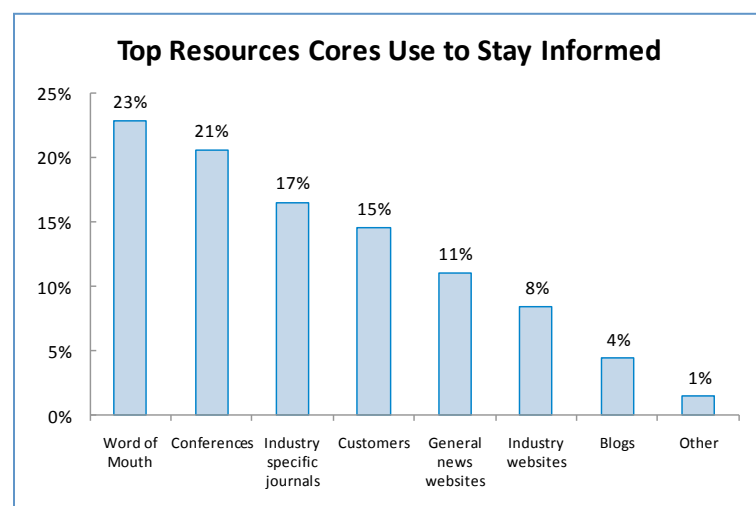
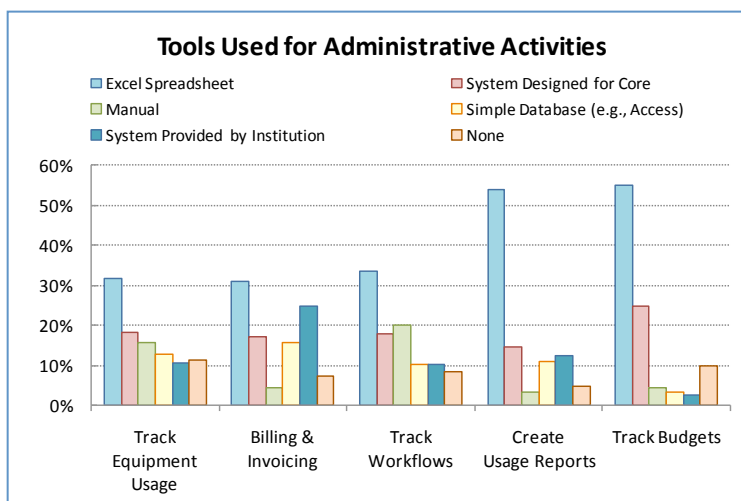
Tools to obtain customer feedback: 39% of core facilities have not established a systematic process to obtain customer feedback, but rather, they receive comments and feedback in ad hoc, informal conversations. 31% of the cores that responded receive feedback from their customers via email, and about half as many cores (15%) ask their customers to complete a survey. The remaining cores obtain feedback via a website form, manually through a comment box, other non-disclosed methods, or they do not request or obtain feedback at all. (See Appendix for Methods Used for Soliciting Customer Feedback chart).

Tools for receiving requests: Out of 220 responses, 35% of those surveyed use email as the primary method to receive requests from their customers. Slightly fewer cores (34%) use a website e-form that was developed in-house, purchased from a vendor, or obtained as an open sourced solution. Cores also receive requests from their customers in hallway conversation or otherwise in-person, over the phone, or using a hard copy form. The remaining 2% use other methods not specifically described in this survey (see Appendix for Common Methods for Receiving Request chart).

³ The question in the survey related to core expenses was worded incorrectly. Numerous respondents provided feedback on this question; we apologize for the confusion and will improve wording in the 2012 survey.

Tools for Other Core Administrative Tasks:

Based on the survey results, **Excel or other spreadsheets are the most popular method of tracking equipment usage, managing billing and invoicing, tracking the work flow of a complex project or service, preparing usage reports, and managing the core's budget.** Other methods used to manage utilization of a core are handwritten notes in notebooks or on sticky notes, an electronic system designed specifically for their core, a basic database such as FileMaker or Microsoft Access, systems designed for cores provided by the institution, or other non-disclosed methods.



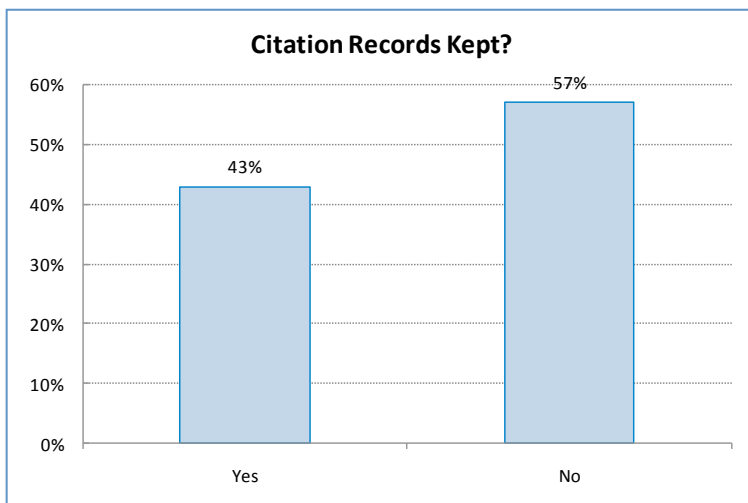
Staying Informed: Core managers and directors indicated that **word-of-mouth is the most common resources to stay informed about core facilities and broader industry trends and events.** Conferences and industry-specific journals and magazines also tend to be useful tools for this purpose. Many cores also rely on their customers and various websites (general news websites, industry websites, and blogs).

Social Networking: While 61% of responders said that they do not use social media for work, 29% of responders use LinkedIn, 5% use Facebook, and only 4% use Twitter (see Appendix for Use of Networking Sites chart).

Citations: The majority of cores do not know how often they are referenced in a paper, presentation, or poster. For the cores who do keep citation records, the average number of publications where a core is cited was 21 publications in 2010.

Web Resources and Conferences:

When asked to list which websites core facilities use most often, those who responded to the survey ranked ABRF as the top website followed by PubMed, Google, and Genome. In terms of the most useful work-related conference, ABRF was the cited most often. ISAC, ASMS, and AGBT were also specified as useful conferences.



Analysis and Conclusion

The analysis of this inaugural Core Facility Benchmarking Survey shows that cores are growing and are increasingly recognized as valuable resources in the scientific research community. However, it also shows that more advanced processes, tools, and technologies could significantly improve the way cores manage day-to-day activities, market their services, and remain at the forefront of their scientific specialties.

The raw data for most responses to the survey are presented at the end of the report in the Appendix to allow the reader to draw additional conclusions beyond the analysis presented below.

SERVICE GROWTH AND PRICING

Nearly 60% of core managers or directors reported an increase in the number of users for their core facilities in 2010 compared to 2009, and 65% of cores saw an increase in utilization rate of their services and equipment. This data suggests an ongoing increase in awareness and greater acceptance of cores and recharge centers as valuable resources, as well as improved productivity within cores.

Many cores do not actively market themselves using modern technology, instead relying on word-of-mouth (81%) and institutional websites (78%). Online communities, whether email listservs or networking tools (e.g., LinkedIn, Facebook and Twitter) offer mechanisms for cores to expand awareness of their expertise, and grow their customer base on both a local and global level.

The survey responses indicate that most cores have successfully adapted to the requirement of charging for services rendered. Moreover, the core community has developed a largely consistent standard of charge different prices based on customer type, although internal customers remain by far the most important customer type (nearly 80%). Cores generally use cost-based calculations to determine prices, a trend presumably driven in large part by funding agency guidelines.

FOCUS ON CUSTOMERS

Many cores originated as adjuncts to independent research labs, when investigators gained found themselves with unique expertise or equipment. The survey results indicate that cores have largely evolved to being primarily customer-oriented operations. Core managers spend more time (56 hours per month) on providing the services to customers than any other single task. Other tasks that cores must balance include core administration, independent research, and remaining on the cutting edge of technology.

Most cores solicit customer feedback for the services they provide. However, this feedback is seldom received through a consistent and rigorous mechanism: nearly 40% of cores rely on informal conversations and an additional 30% rely on email.

REVENUE AND EXPENSES

Although cores have a variety of sources of funding to allow them to remain operational, the main funding source for these types of facilities is revenue from their customers, on average reported at nearly 50% of total funding.

About half of a core's expenses go to paying for employee salaries and benefits. Reducing the number of employees in the core is probably not realistic in most cases; however, increasing the efficiency of the processes used in a core should make the lab personnel more efficient and allow growth without additional hiring. Streamlining the operational and business processes of a core to allow core employees to spend more of their time learning new techniques and working directly with the core's customers will provide the core with more opportunity to serve more customers and, in turn, increase the core's revenue or lower prices.

USE OF TECHNOLOGY

The tools used for managing cores are often based on technology that is over a decade old. 35% of those surveyed primarily use email to receive requests from their customers, and more core managers and directors use Excel or other spreadsheets for tracking the work flow of a complex project or service, tracking equipment usage, managing billing and invoicing, preparing usage reports, and managing the core's budget.

Core managers and directors stay informed about trends and events that affect their facilities more often by word-of-mouth from their colleagues than by any other resource available to them; the majority of core managers and directors do not use networking sites like LinkedIn, Facebook and Twitter for work related activities. To offer the most up-to-date and relevant services to their customers, core managers and directors need to have good resources and tools to ensure they are staying at the forefront of their scientific focus. Not using more modern tools to connect a larger relevant audience likely leads to missed opportunities.

The majority (57%) of cores do not know how often they are referenced in a paper, presentation, or poster. If cores had better tools and policies to track the number of publications where their work is referenced they could use this information for marketing and to justify an increase in financial support from their institution. Additionally, often this information is requested in grant applications.

iLab intends to perform and report a Core Facility Benchmarking Study on an annual basis to capture how core facilities grow over time. As cores become more used and accepted as valuable resources for research institutions, this study should prove useful to encourage the maintenance and growth of cores, service centers, and recharge centers.

About iLab

iLab Solutions is a leader in providing web-based management services to academic research institutions. iLab exclusively serves the academic research community, with customers that include leading NIH-funded universities, research hospitals, and independent institutes. iLab leverages a scientific advisory team which includes active PIs with research backgrounds from EMBL, Harvard, Huntsman Cancer Institute, Mt. Sinai, Stanford, St. Jude's, University of Michigan, and Yale.

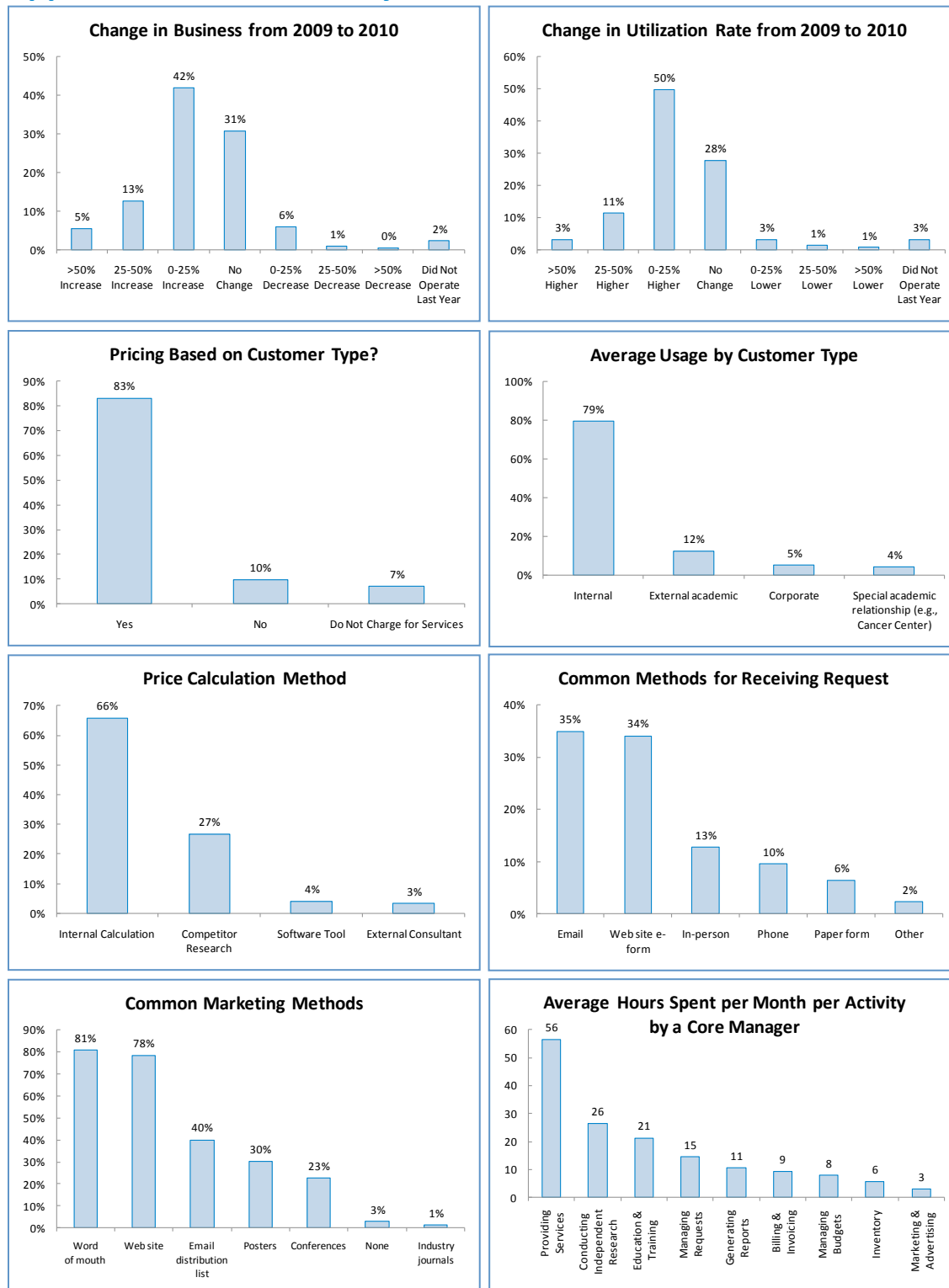
With five years' experience and a broad customer base, iLab is a stable partner for research institutions. iLab enjoys a positive cash flow and a rapidly-growing customer base (greater than 100% year-on-year growth). More than \$3 million in requests are processed every month through the iLab system. The iLab leadership team includes executives with experience from Deloitte, Genentech, Intel, McKinsey, Microsoft, and SAIC.

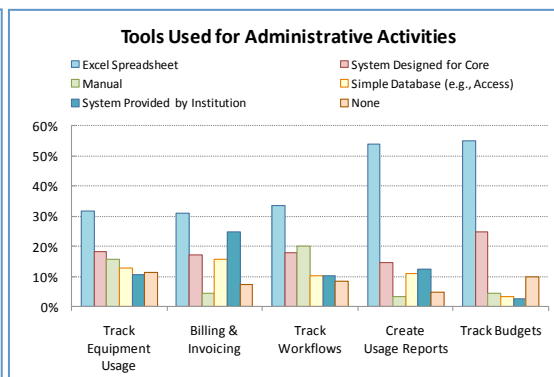
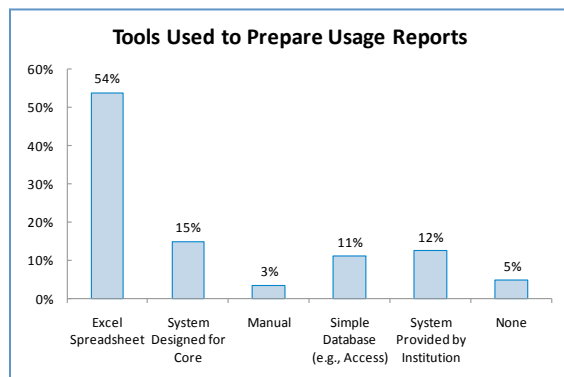
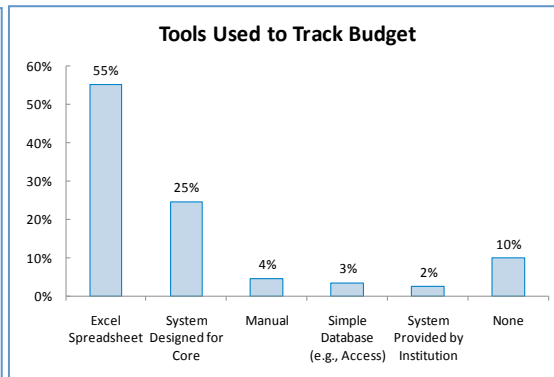
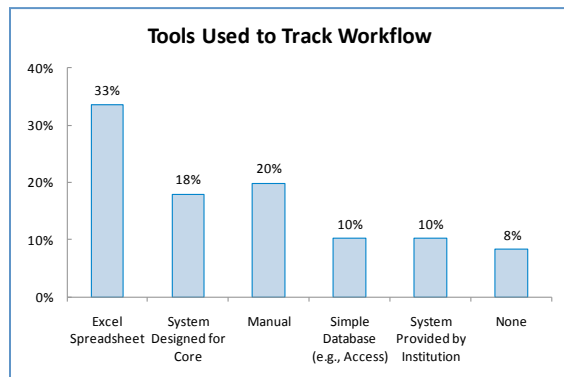
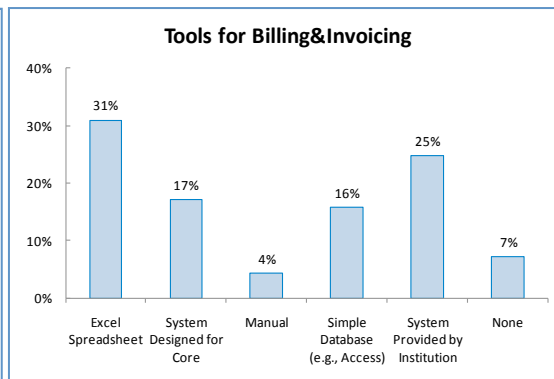
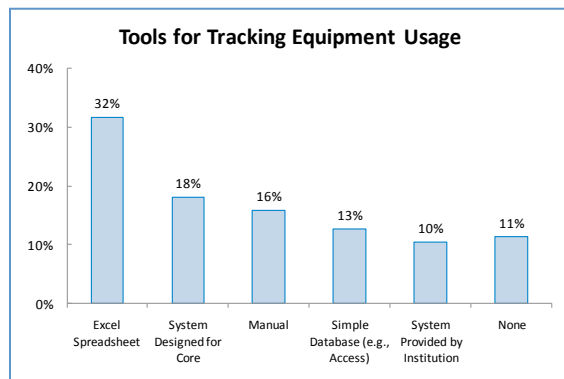
iLab has extensive experience providing enterprise-level solutions at major research institutions. These solutions include integrations with institutional financial systems (e.g., SAP, Oracle/PeopleSoft, Lawson, Banner, etc.) and identity management systems. iLab's dedicated implementation team and established implementation processes guide every deployment.

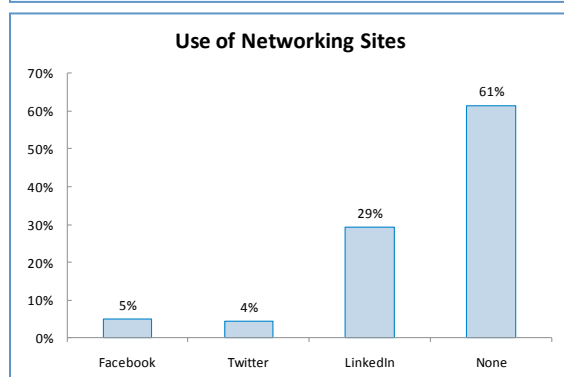
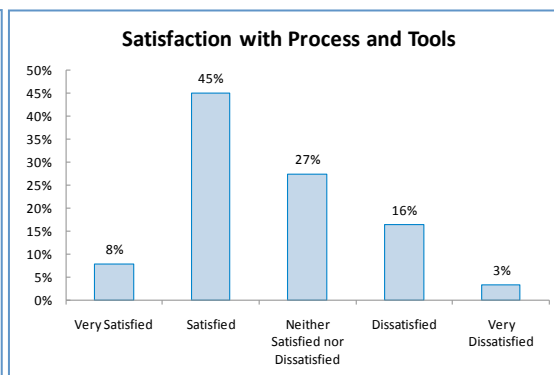
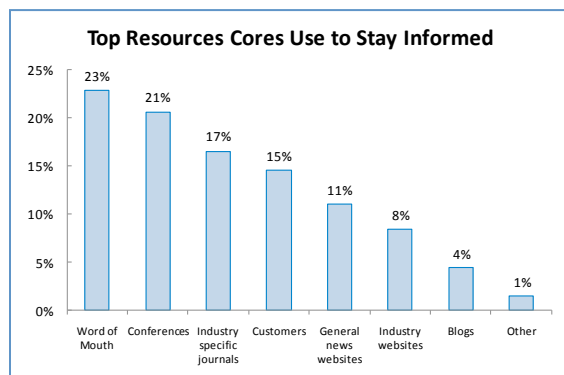
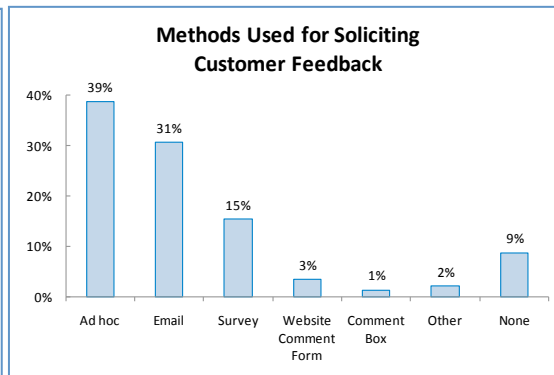
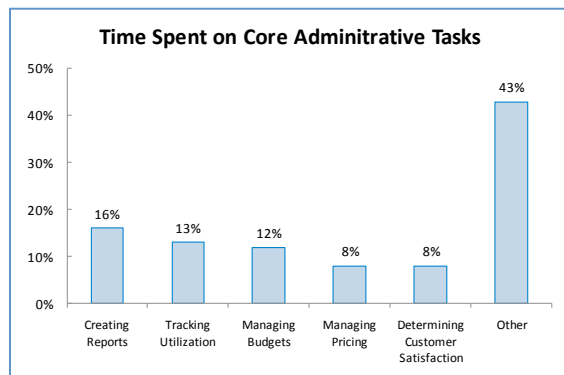
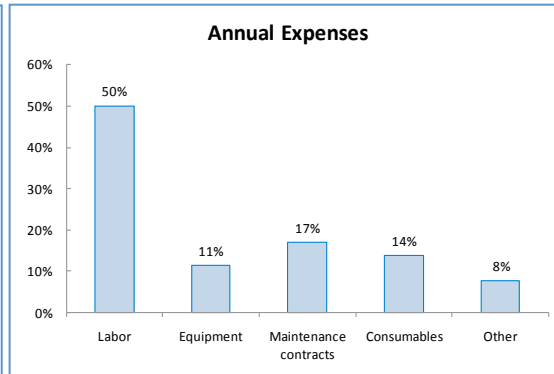
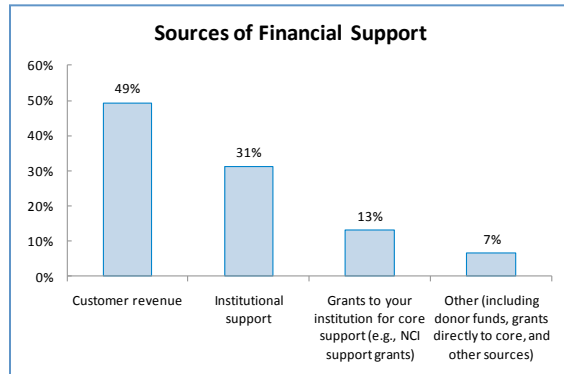
In order to ensure stability, security, scalability, and responsiveness, iLab conducts all software development, application maintenance, deployment, and user support internally. This internally-resourced approach results in a close relationship between iLab and our customers and ensures iLab can rapidly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

iLab offers a suite of web-based tools for academic research management. The functionality includes core facility service request management, equipment reservation and usage tracking, billing and invoicing, reporting, and lab requisitioning and spend tracking tools. Enhanced sample management functionality is currently under development.

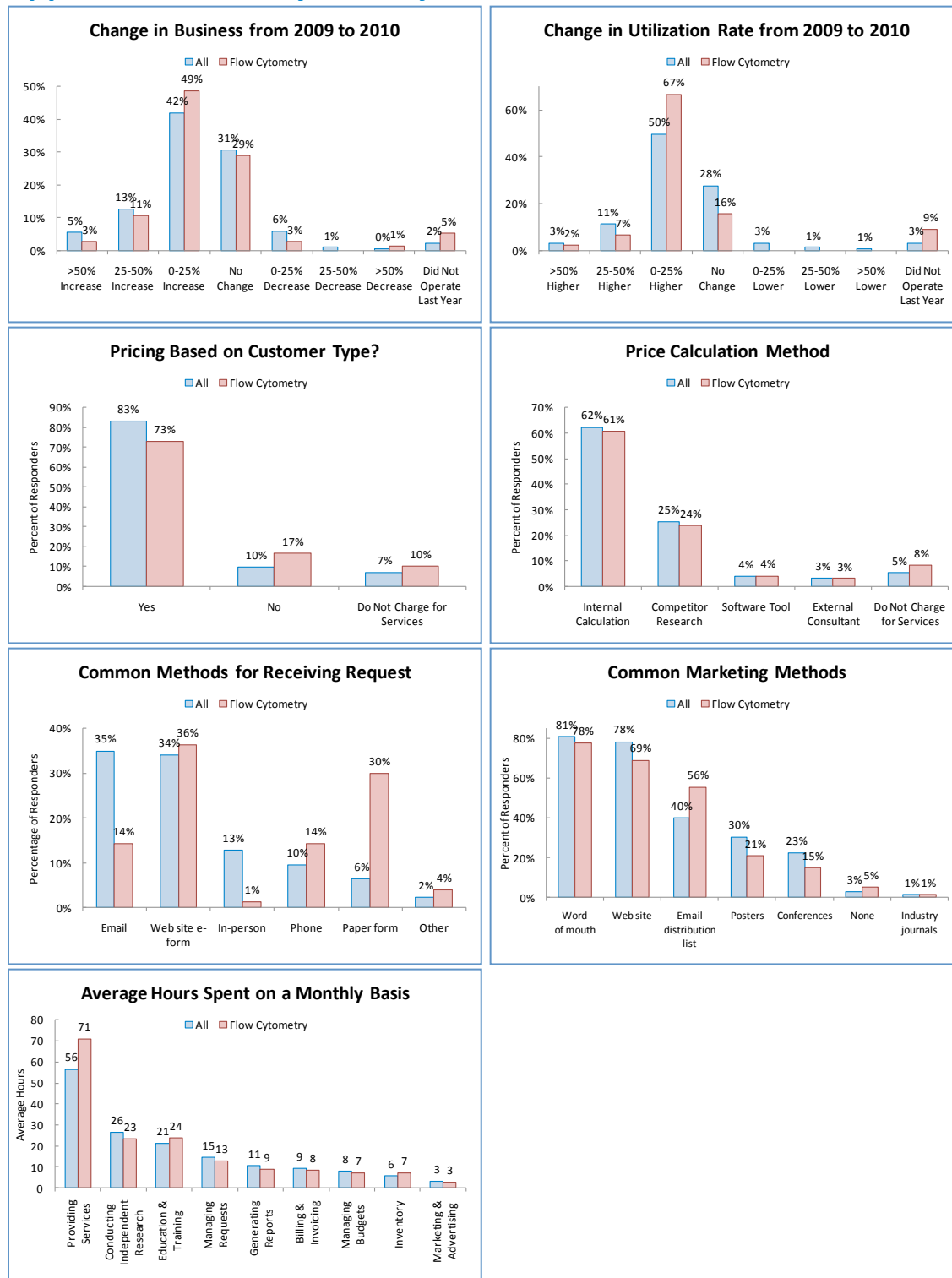
Appendix A: Overall Study Results

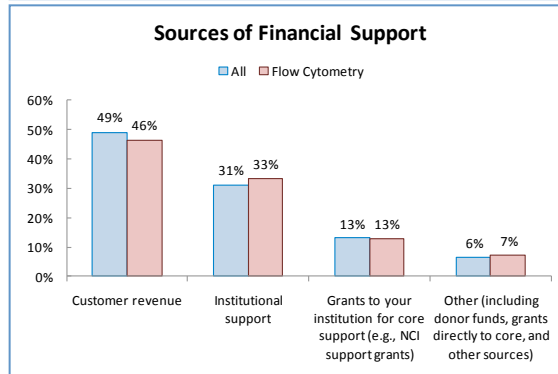
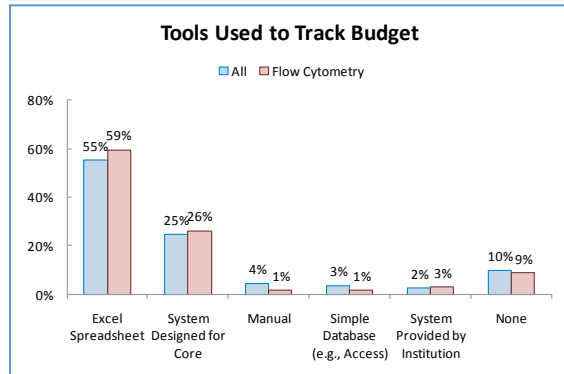
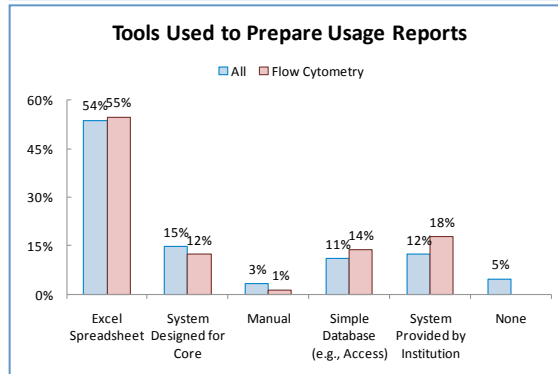
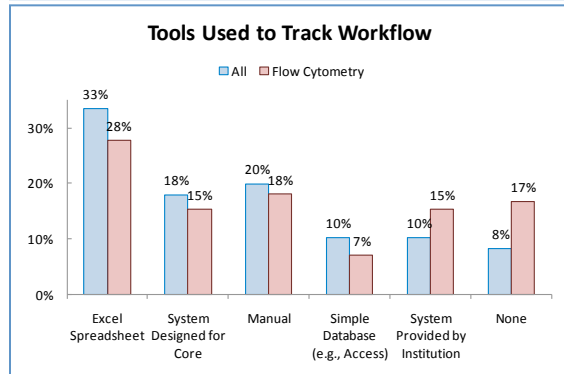
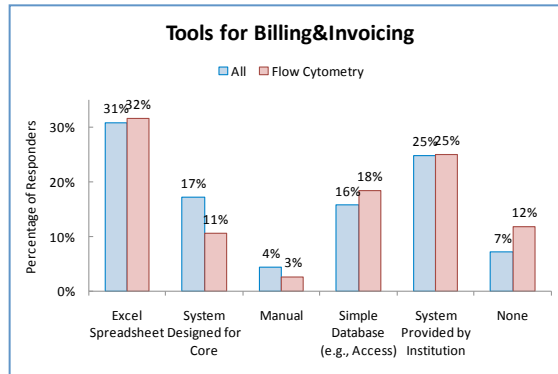
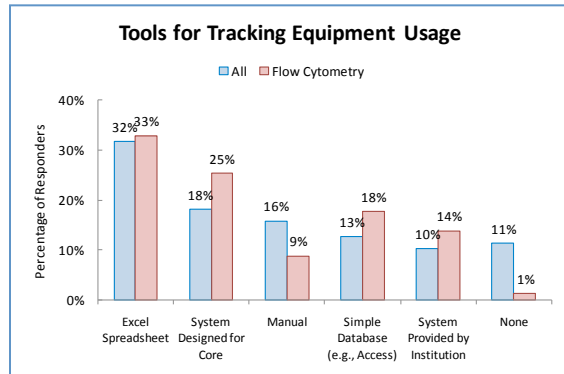




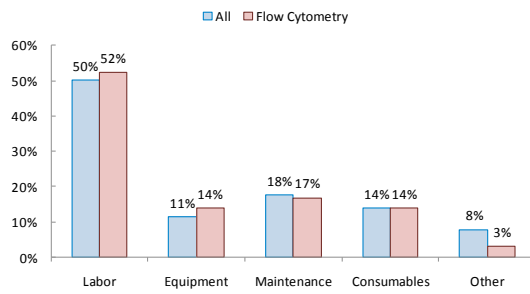


Appendix B: Flow Cytometry Core Results

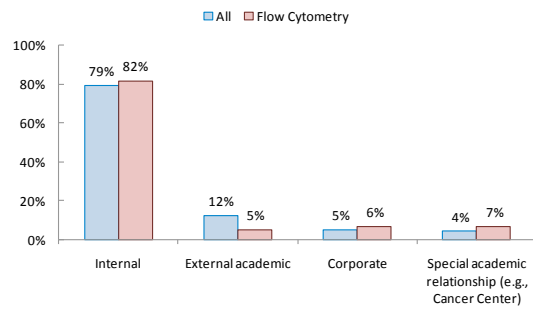




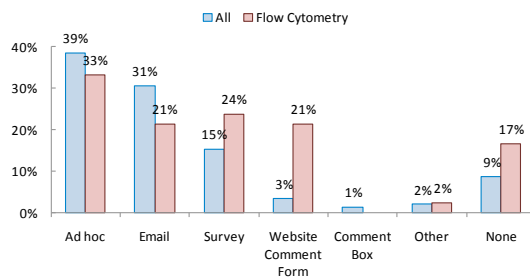
Annual Expenses



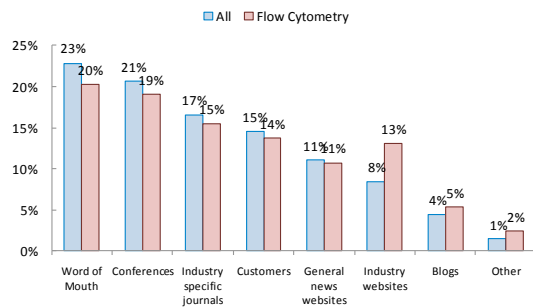
Avg Usage by Customer Type



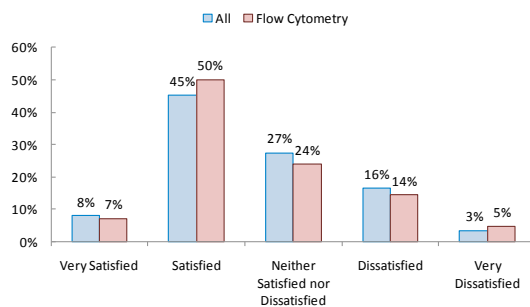
Methods Used for Soliciting Customer Feedback



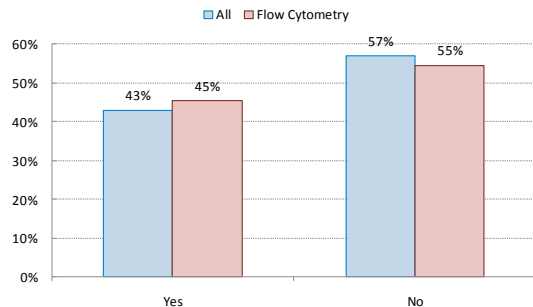
Top Resources Cores Use to Stay Informed



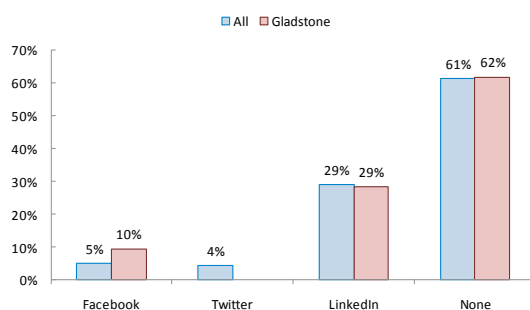
Satisfaction with Process and Tools



Citation Records Kept?



Use of Networking Sites



Additional Comments from the Survey

General Comments Left at the end of the Survey

“Central management of core facilities is the most effective way to manage a group of cores. We have that here with extremely effective leadership. And once we have a better billing system in place, my level of satisfaction will move from “satisfied” to “very satisfied”.”

“It’s a business but one in which most Core Managers and Directors have to learn without assistance.”

“Management of finances and other information is very difficult right now as everything is on Excel spreadsheets and the data is hard to compare. Also, all of my information that I get from accounting is so complicated I do not know how to read it.”

“THANK YOU iLab for putting this together.”

“The x-ray diffraction laboratory is not really run like a core lab that provides “services”. There are no personnel to operate or maintain the equipment. The equipment is available for use by those with specialized training. The labs that use the equipment pitch in every year to cover costs of service contract and consumables.”

“Training is an important service provided by our Core; we struggle with covering the costs for our training workshops and for instrument depreciation (to upgrade after the equipment ages). We provide full service and equipment training. Tracking hourly use of instrumentation, training, and sample submission/tracking are of most importance.”

“With only 6 people we are extremely efficient and costs are low because of a very high volume of customers. Over 30 external customer sites.”

Common Complaints Cores Hear

Core managers and directors who completed the survey were asked to provide the three most common complaints that they hear from their customers. The complaints most cited were the following (verbiage used may not be exact):

- core prices
- turn-around time for processing samples
- problems with sharing equipment with others not responsible for the equipment
- scheduling/request challenges
- lack of core availability/support
- not enough resources (instrument, staff, storage space)