



Benchmarking Corporate

EHS Management
Information
Systems

Funding and Implementation Trends

November 2011



www.naem.org

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About NAEM



The National Association for Environmental Management (NAEM) empowers corporate leaders to advance environmental stewardship, create safe and healthy workplaces, and promote global sustainability. As the largest professional community for EHS and sustainability decision-makers, we provide peer-led educational conferences and an active network for sharing solutions to today's corporate EHS and sustainability management challenges. Visit NAEM online at www.naem.org.

About this Survey

Background

Since 2001, NAEM, the largest professional association for environmental, health and safety (EHS), and sustainability decision-makers, has conducted a bi-annual benchmarking survey to understand how its members use EHS data management software. This survey report provides a snapshot of the EHS MIS category, how much companies are spending on their systems and how they approached the implementation process.

Methodology

An online survey was emailed to NAEM members and attendees of NAEM's March 2011 EHS MIS conference. Of the 77 respondents, 52 provided meaningful data. Specific questions related to systems often yielded fewer complete responses.

Respondents

The majority of respondents worked for multinational manufacturing companies with more than 10,000 employees. This group includes representatives from Amtrak, Apple Inc., The Boeing Co., Eli Lilly & Co., General Mills Inc., Georgia-Pacific, Lockheed Martin, MillerCoors, Motorola Mobility Siemens, Target Corp., and Valero Energy Corp. Smaller companies, specialty firms, and municipalities also are represented.

The majority of individual respondents were corporate EHS staff or corporate EHS leaders, although some focused on at the plant or facility level.

Notes on the Analysis

Due to the categorical nature of many of the questions, the analysis primarily includes the use of charts (column, bar, pie, XY-scatter) and tables, as well as cross-referencing of questions. Where applicable, linear regression and significance testing was used to determine if quantitative relationships held (e.g. company size as a predictor of environmental resource allocation). A standard statistical software package ("R") was used to conduct these analyses. Certain fields required text responses, which are included to provide qualitative color.

Several reservations should be noted when drawing any conclusions from this data. First, the nature of the sampling for any such study is non-random, and response bias is unavoidable. Related to that, the problem of missing data reduces the level of confidence that can be achieved.

For more notes on the analysis, please see the [appendix](#).

Executive Summary

Since the emergence of a formal software industry about a decade ago, the environment, health and safety (EHS) management information system (MIS) marketplace has continued to mature, transforming these systems from a nice-to-have tool to the standard way of doing business. For many companies, these data management tools seamlessly integrate health and safety incident reporting with traditionally tracked environmental metrics. The results from NAEM's 2011 EHS MIS survey reflect the evolution of the software industry and reveal how companies are using software to drive EHS value.

The following is a summary of the key takeaways:

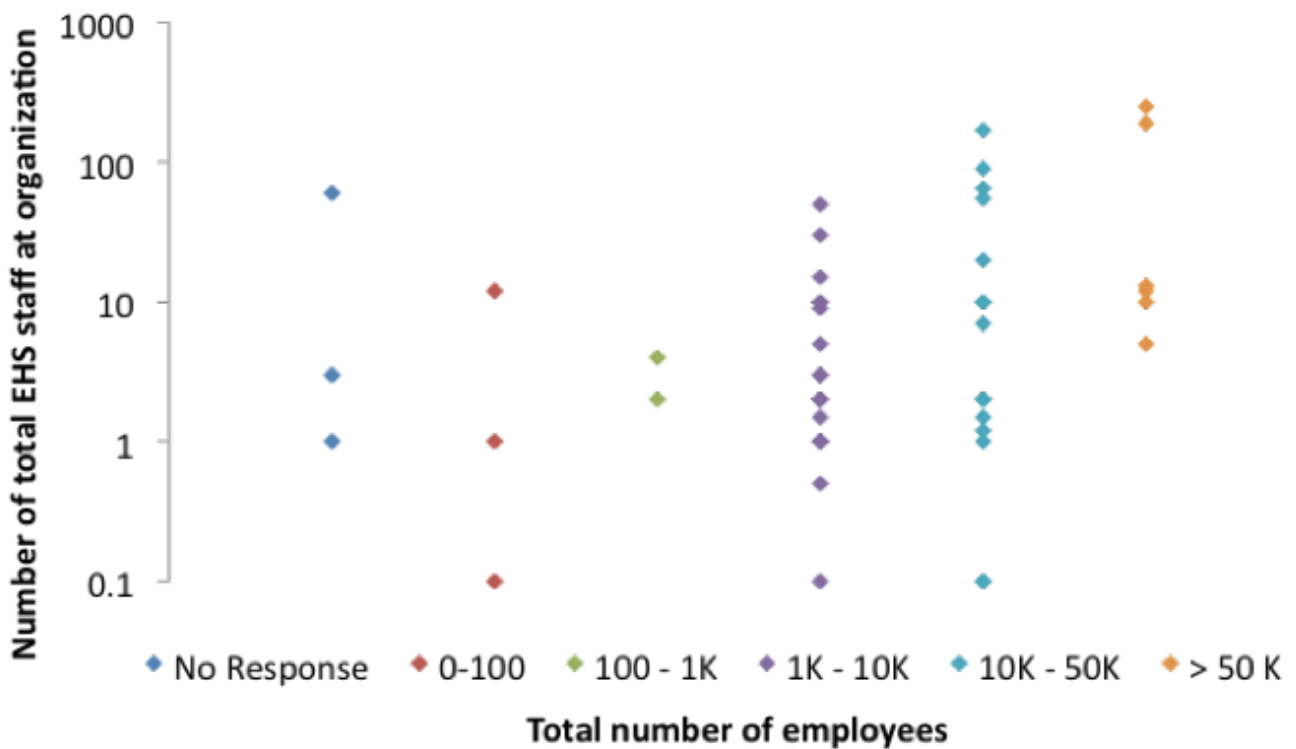
- Most companies today have had a well-established EHS management information system in place for years; many companies are on their second generation system.
- Respondents are generally satisfied with the current state of their systems, with most rating the process as 6.3 out of 10.
- Most respondents use a combination of homegrown and off-the-shelf solutions.
 - ▶ More than 50 percent of survey respondents have internally developed systems.
 - ▶ Home-grown solutions are built and maintained by a variety of players, including company IT departments, external consultants, and EHS staff.
- The move to web-based systems is complete.
 - ▶ EHS budgeting allocation indicates that a significant portion of the budget goes to hosting and licensing fees.
- Respondents are committing approximately the same amount of resources to EHS in relative terms. For every \$20,000 additional in company sales, we can expect \$1 additional allocation to the EHS MIS budget.
- Among those who provided data specific to their systems, the majority implemented an EHS system at the company or plant level; most systems were implemented more than two years ago.
- Among those who have an off-the-shelf system, there are some leaders, but overall there is significant fragmentation – no single dominant system.
- While there's a drive toward greater integration, EHS MIS systems still tend to stand alone, except for targeted needs, such as human resources.
- Although most core EHS functions are covered by current offerings, companies are beginning to look for new functions to assist with greenhouse gas (GHG) reporting and carbon footprinting.
- Interest in sustainability metrics is on the rise, but compliance-related data remains a key management priority. The most requested by management are:
 - ▶ Incident statistics
 - ▶ Notice-of-violations
 - ▶ Sustainability metrics for environmental reporting
 - ▶ Compliance targets
 - ▶ Greenhouse gas (GHG) management

Presentation of Results

Resource Allocation

The human capital resource allocation to EHS, or the amount of resources dedicated to EHS, is proportionate with the size of the company. While there is some variability in the amount of resources allocated to EHS per each company, any inconsistency may be due to company size or the nature of the survey response to the question. Nonetheless, the direct relationship of company size to the EHS resource allocation is visually clear in the below chart.

Number of EHS Staff vs. Total Number of Employees



Survey question Q14: Total number of full-time equivalent staff you have working on Environmental/ EHS Information Systems throughout the organization:

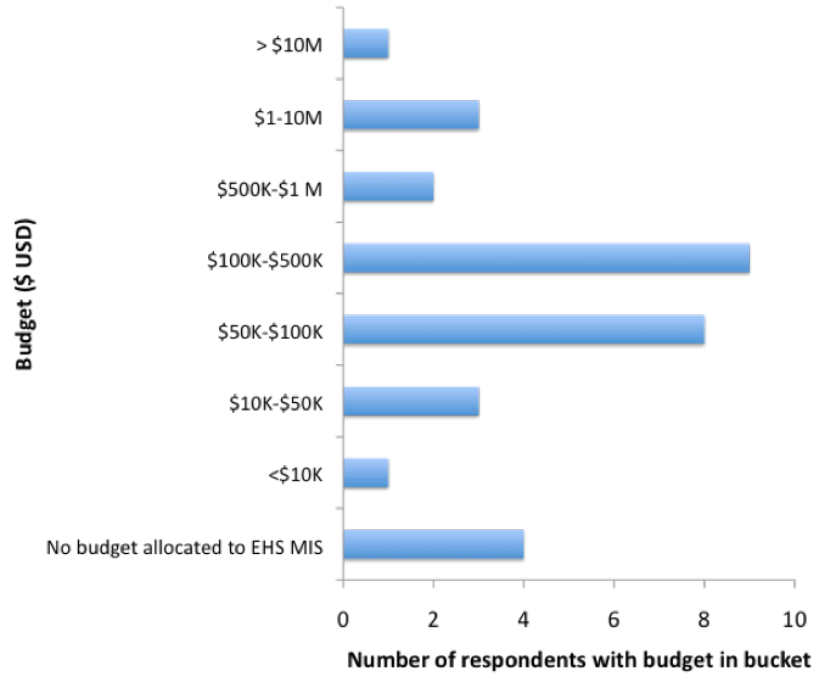
For every \$20,000 additional in company sales, we can expect \$1 additional allocation to the EHS MIS budget.

Presentation of Results

Budget

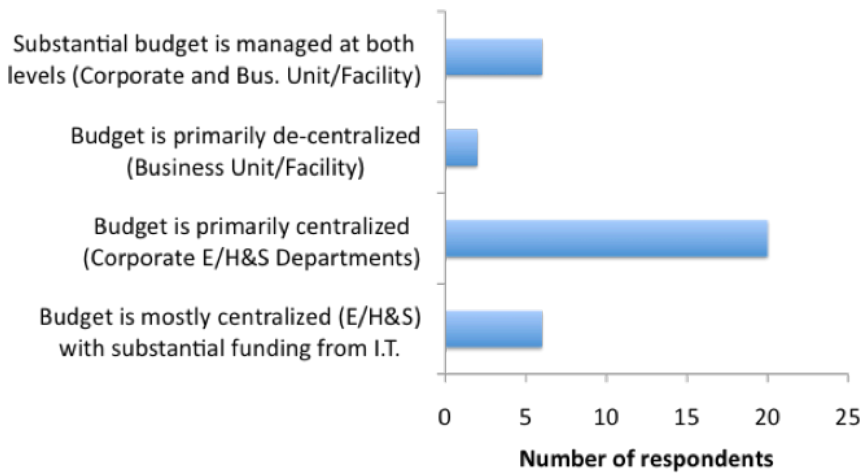
Organization-wide budget for EHS MIS is typically \$100-500K, though it is generally proportional to organization size. For every \$20K in sales, we can expect one dollar for the EHS budget.¹ These resources are typically doled out from the central corporate level, although there is some splitting present in the response data.

Organization-wide EHS Budget



Survey question Q24: What is your organization-wide budget (USD) for EHS Management Information Systems?

EHS-MIS Funding Administration



Survey question Q23: EHS-MIS Funding and Administration: How is the EHS-MIS budget managed in your organization?

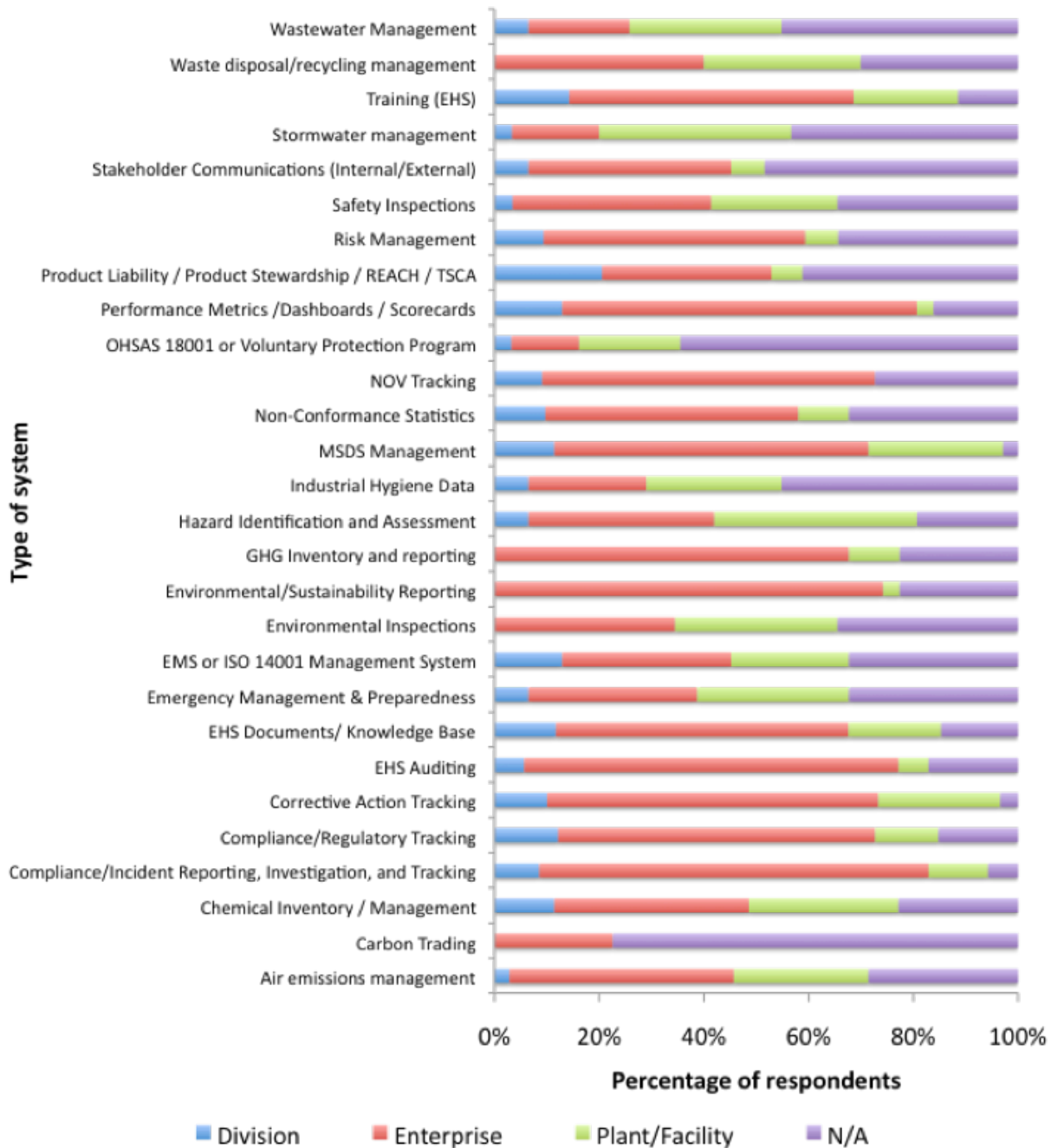
¹ Full regression output is included in the appendix.

Presentation of Results

Systems Implementation

Systems are typically implemented at the enterprise or facility level, rather than the division level. This is broadly consistent with the budgeting structure explored above. Note also that a large number of systems remain unimplemented.

Systems Implementation



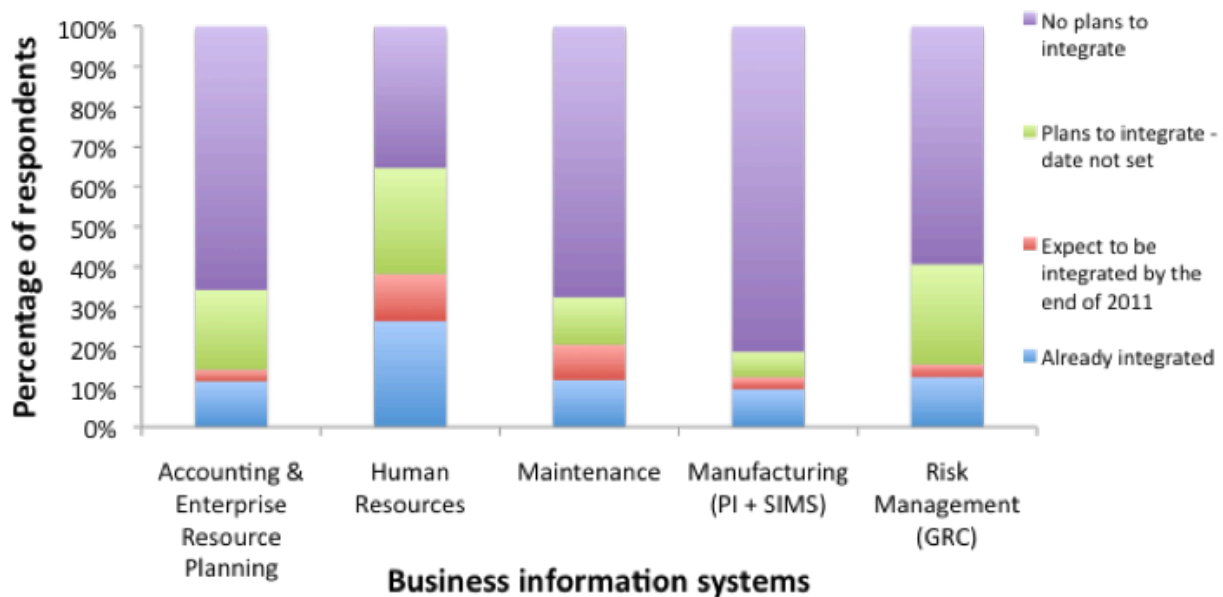
Survey question Q15 (Part 1): Indicate which electronic EHS Information systems you have in your organization to support the EHS functions, and at what level

Presentation of Results

System Integration

EHS MIS systems are not generally integrated with other business functions. Less than 50 percent of respondents indicated any plans to integrate with accounting and enterprise resource planning, maintenance, manufacturing (PI + SIMS), or risk management (GRC) systems. Specific areas such as human resources are more likely to be integrated with the EHS MIS.

EHS Information Systems Integration



Survey question Q16: Please check the box if your EHS information system integrates with, shares or retrieves data from any of the following business information systems, or if you expect it to by the end of calendar 2011:

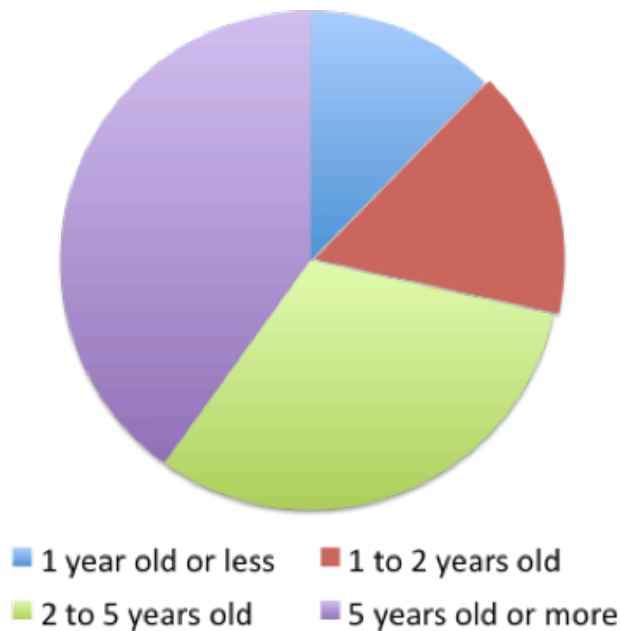
Specific areas such as human resources are more likely to be integrated with the EHS MIS.

Presentation of Results

Age of Applications

Most applications are well established. The chart below indicates that the majority of systems have been in place for more than two years.

Active Applications by Age



Respondents with percentages summing to values unequal to 100% have been normalized.
Survey question Q17: What percent (%) of your active applications are:

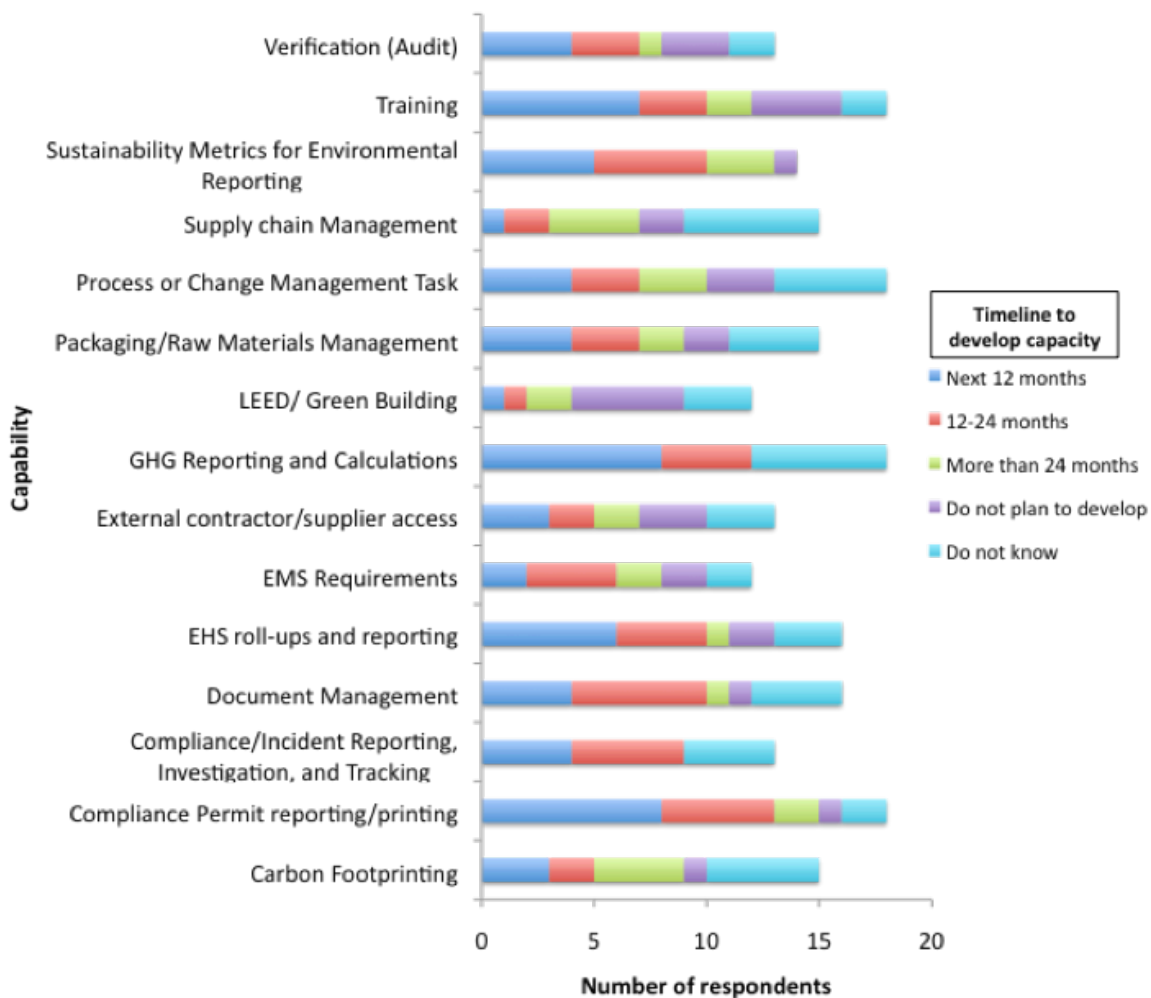
Specific areas such as human resources are more likely to be integrated with the EHS MIS.

Presentation of Results

EHS Development Priorities

While some plan to augment EHS capabilities in the next 12 months, the majority of respondents do not plan to develop new capabilities further within the coming year. GHG reporting and calculations, compliance reporting and training seem to be more urgent priorities, however.

EHS Capability Development Timeline



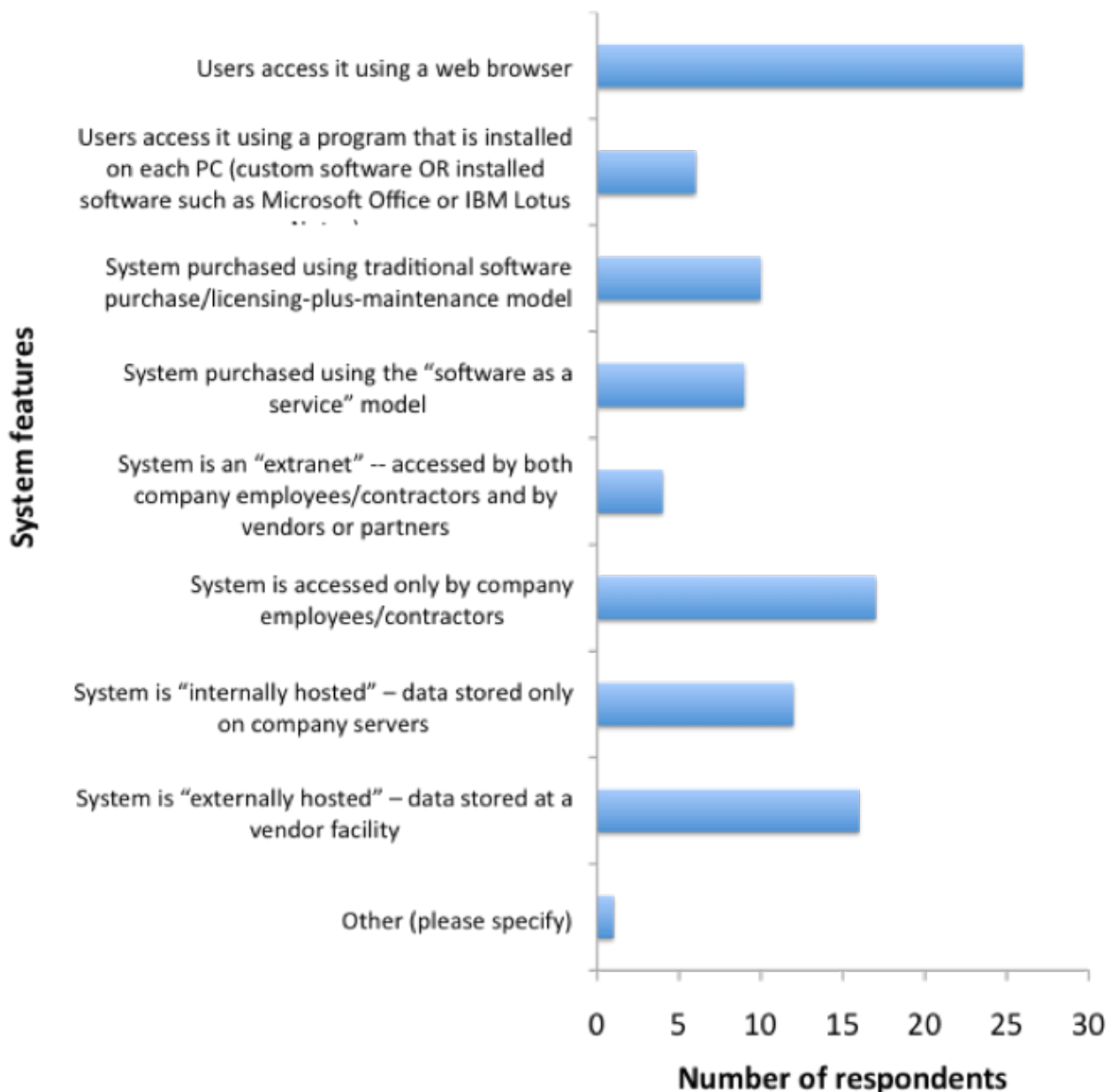
Survey question Q30: If you plan to fund development of the following capabilities, will it be during the next 12 months, the next 12-24 months, or in a time frame of longer than 24 months?

Presentation of Results

System Features

The move to web-based offerings seems complete, which includes the software-as-a-service model.

“Off-the-shelf” EHS-MIS Software System Features



“Other (please specify)” responses include: application vary based off the end user needs

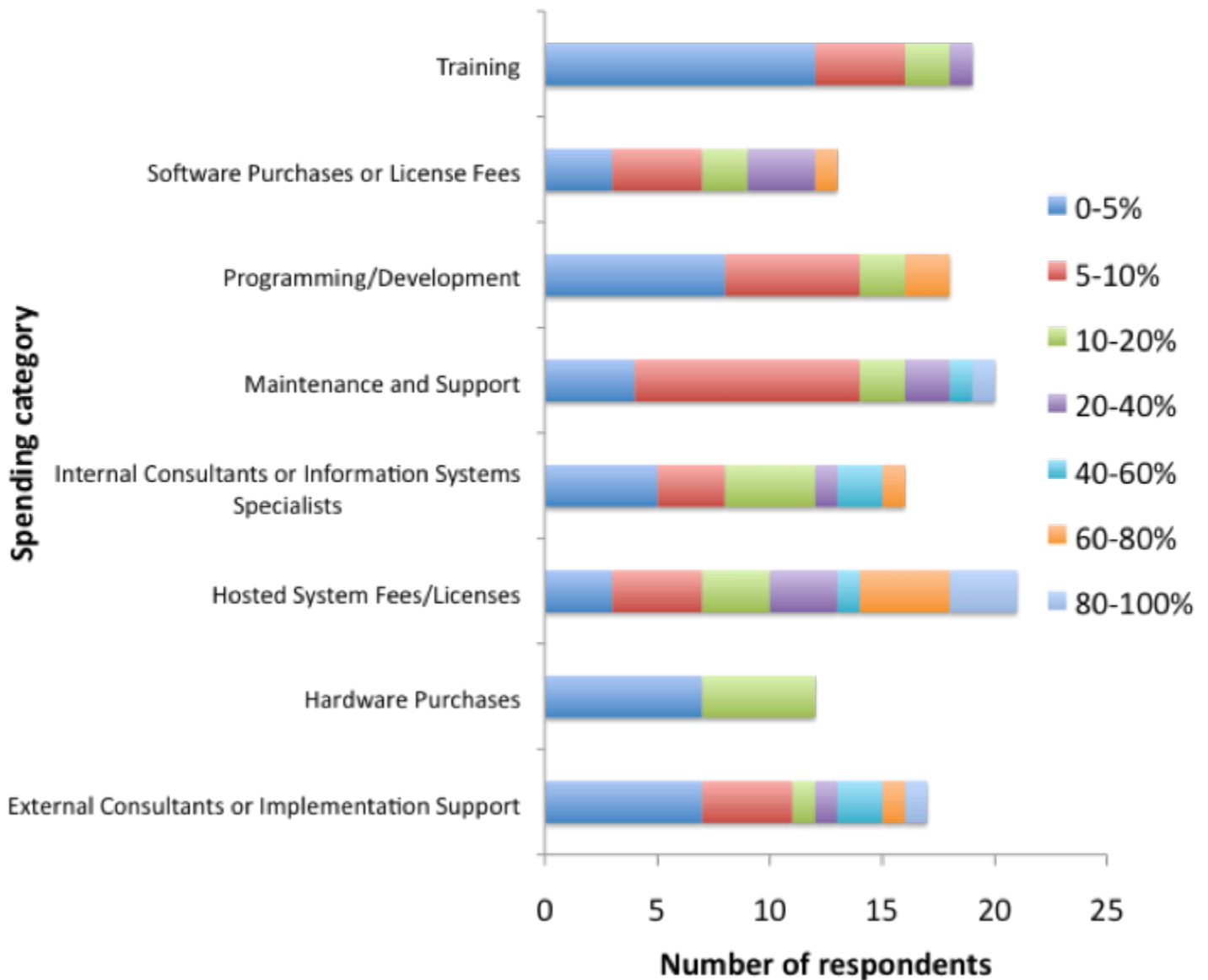
Survey question Q19: If your company uses “off-the-shelf” EHS-MIS software (either an integrated package or independent function-specific packages), check the items that apply to any your main off-the-shelf system(s).

Presentation of Results

EHS Spending by Category

The use of web-based services is reflected in the EHS budgeting allocation, which reveals that a significant portion of the spend goes to hosting and licensing fees.

EHS Spend by Category



Survey question Q25: Of the above total, please indicate the percent allocated to each of the following categories:

Presentation of Results

Systems Used

Among those who have “off-the-shelf” system, there are some leaders but there no single dominant system.

“Off-the-shelf” Systems in Use

Response data

Application International Corporation Summit Energy
Dakota Auditor and Tracer from Dakota Software Safetec Chemical Management from Safetec CyberRegs from Citation Documentum
EEM from Hara, MSDS from Actio
Enabelon is being put in place in 2011. Facilities use state and federal environmental reporting software.
Enablon
Enviance, STARS and other applications
Essential EHS from IHS STARS RMIS from CS STARS Intelligent Authoring (MSDS) from Atrion BappTrack/RINCON from BST
IndustrySafe for safety, internal developed system for sustainability, environmental and risk management
Intelex
Intelex, Chemical Management HAAS,MSDS online, Learning Management System, Maximo
KMI Software, Siteview We have also developed our own Regulatory Compliance Database called MyCompliance which tracks over 6000 pieces of regulatory requirements we adhere to and which are linked to responsible job functions.
KMI, MSDgen from 3E, SiteHawk
KMI, PHA Pro, Maintenance Connection
LeakDAS from Inspection Logic;Refrigerant Compliance Management (RCM) from IHS (ESS);opsAir from IHS;PHA-Pro from Dyadem;SAP EHS Incident-Accident from SAP; SAP EHS EPM from SAP; SAP EHS Prduct Safety from SAP; Trackwise from Sparta Systems
PermiTrack MS4 from SEH, Inc.,
ProcessMap
regAction and webCO2+ from IEA, Inc.
SafetySoft CyberRegs ICPC for Product Composition (created w/ consultant) CATSweb by Assurx MSDSOnline
SAP EC
SAP EHS Suite SAP Environmental Compliance SAP Reach Actio MSDS Pilgrim SumTotla LMS
SiteHawk, ESS,
Standard Safety Incident Module, HSE KPI's from Intelex

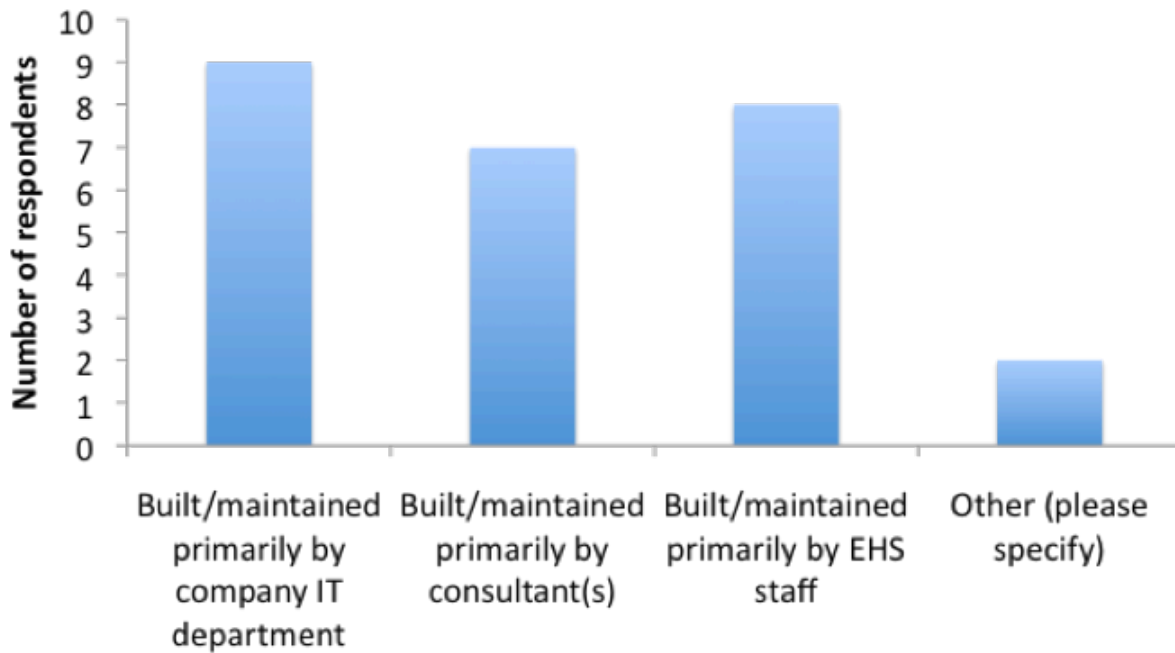
Survey question Q22: If you use “off-the-shelf” EHS-MIS tools, please indicate the system and maker names of the systems you use:

Presentation of Results

Homegrown Systems

In-house IT departments and consultants build and maintain a large percentage of respondents' systems.

“Homegrown” EHS Systems Construction and Maintenance



Note: This question only answered by those whose company or maintains its own EHS-MIS capabilities (i.e., NOT a “commercial off-the-shelf” or “turnkey” system).

“Other (please specify)” responses include: (1) EHS directing contractor who built/modifies system; (2) primarily maintained for EHS staff, but recent application will be maintained by IT and then Run and Maintained performed by EHS Staff

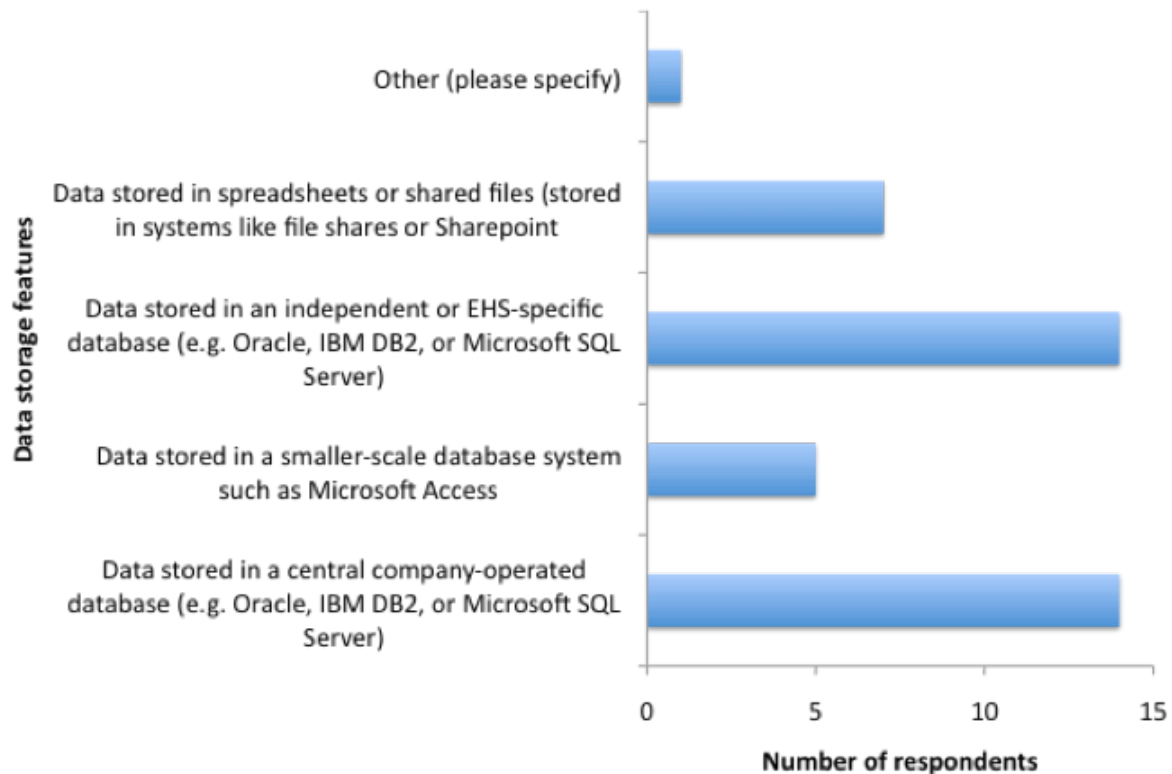
Survey question Q20: Check the item which most applies:

Presentation of Results

Data Storage

Information is housed primarily in high quality databases, which are split about equally between company-operated and EHS-specific. Some companies continue to use spreadsheets, but they are in the minority.

EHS Data Storage



Note: This question only answered by those whose company or maintains its own EHS-MIS capabilities (i.e., NOT a “commercial off-the-shelf” or “turnkey” system).
“Other (please specify)” responses include: Multiply solutions and application used across various platforms within the Enterprise.

Some respondents checked more than one answer category

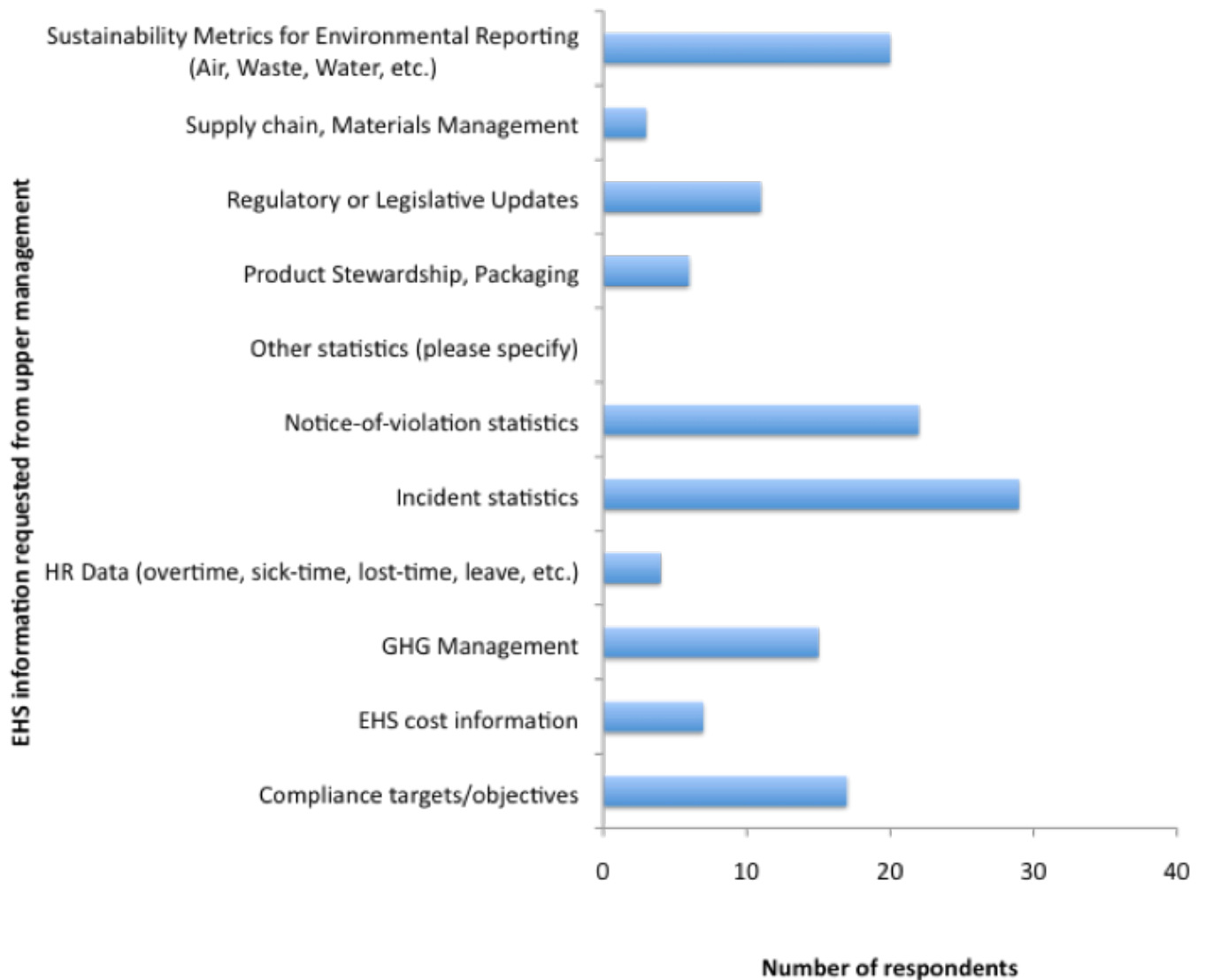
Survey question Q21: Check the item which most applies:

Presentation of Results

Information Needs

Compliance-related data remains a key management priority, but interest in sustainability metrics is on the rise.

EHS Data Requested by Upper Management



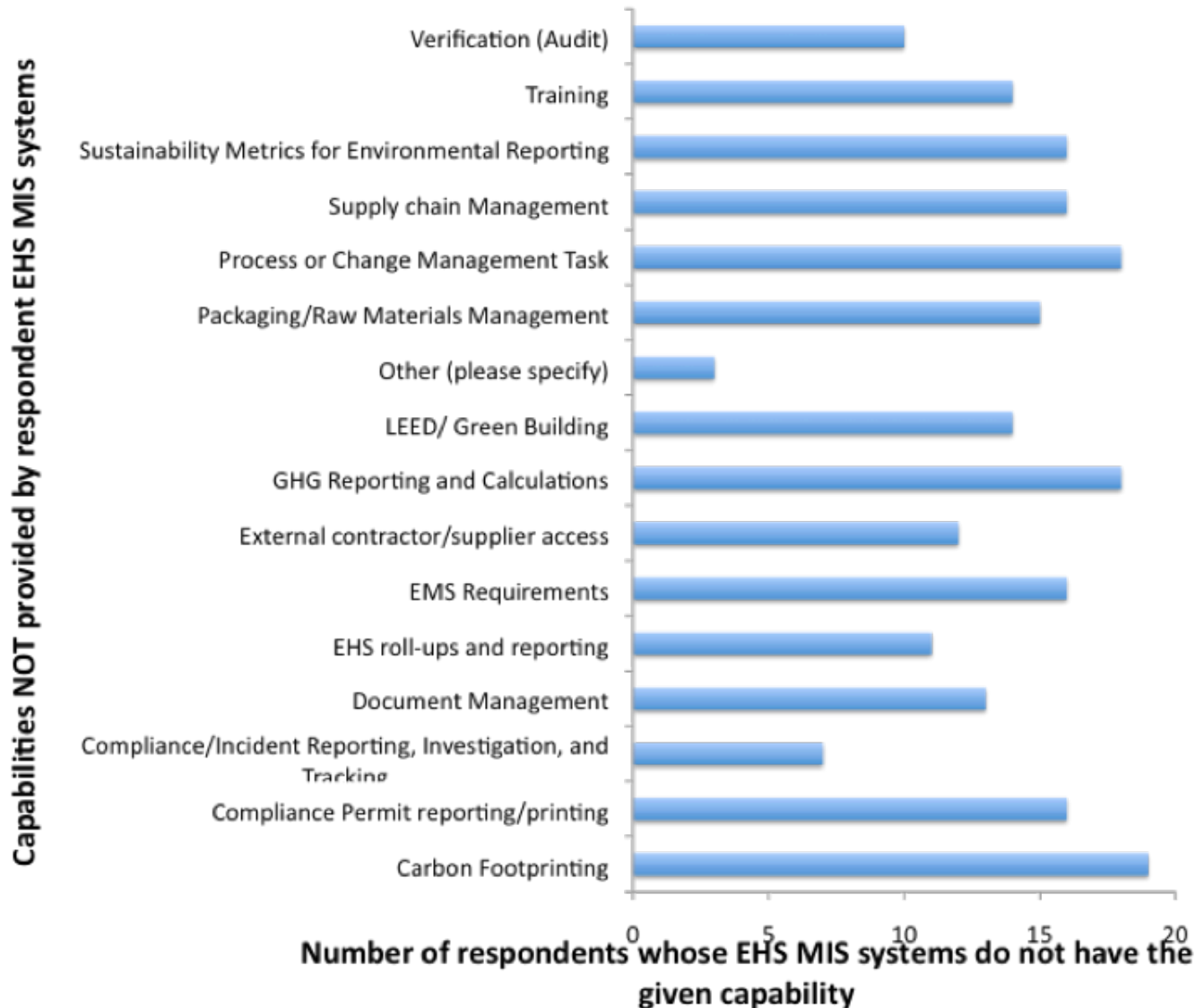
Survey question Q26: What EHS information does upper management most request from you (check all that apply)?

Presentation of Results

Unmet Needs

Several areas need improvement or are not currently available, such as carbon footprinting, and GHG reporting and calculations.

Capabilities not Currently Provided by EHS Systems



Note: "Other (please specify)" responses include: Chemical Management, Chemical/MSDS, Policy/ Procedure updates

Some respondents checked more than one answer category

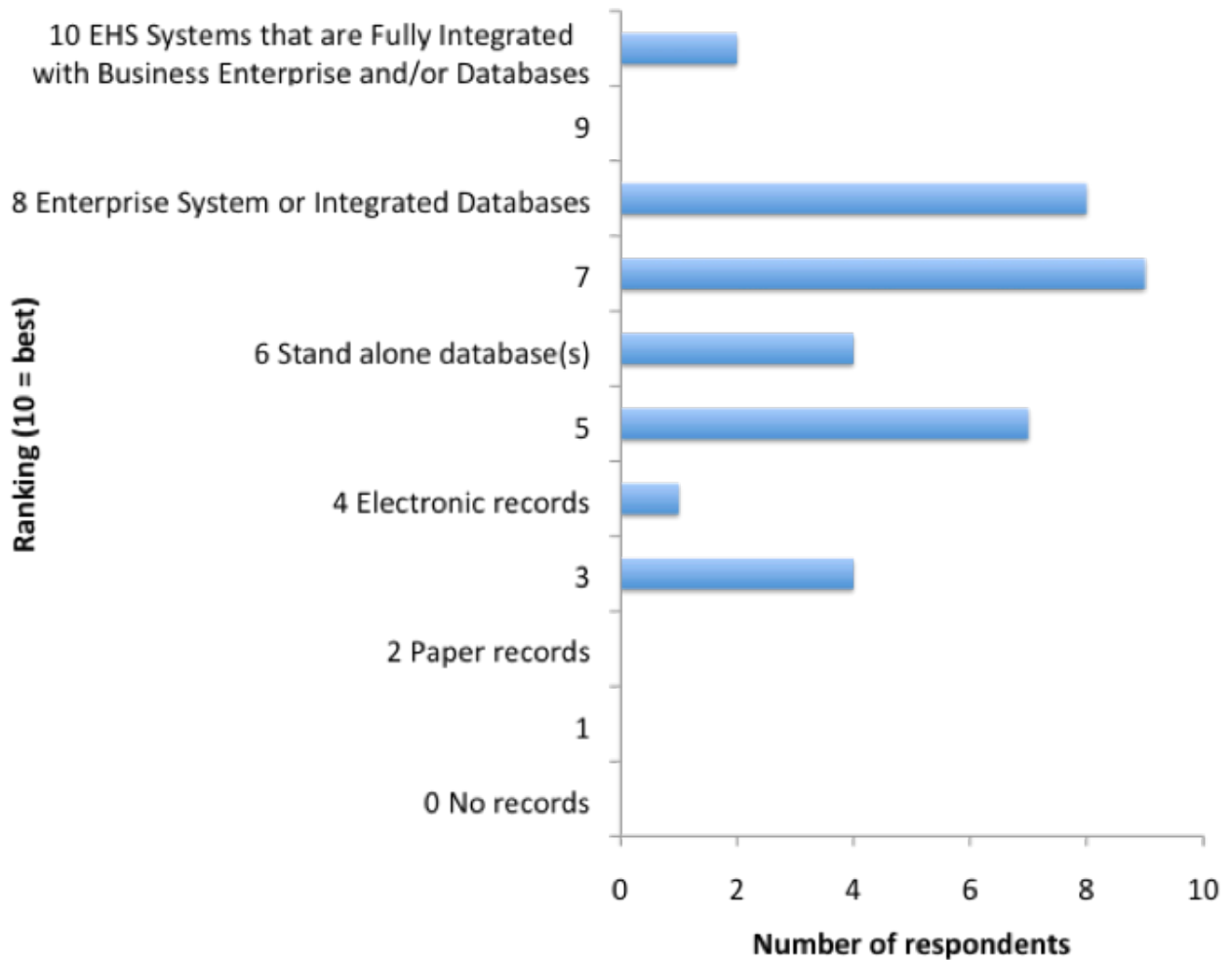
Survey question Q27: What needed capabilities are NOT currently being provided by your EHS MIS systems? Check all that apply.

Presentation of Results

User Satisfaction

Respondents are generally satisfied with the current state of their systems. Respondents rate their overall EHS-MIS process moderately high, with an average rating of 6.34 out of 10.

Respondents' Ranking of their Overall EHS MIS Process



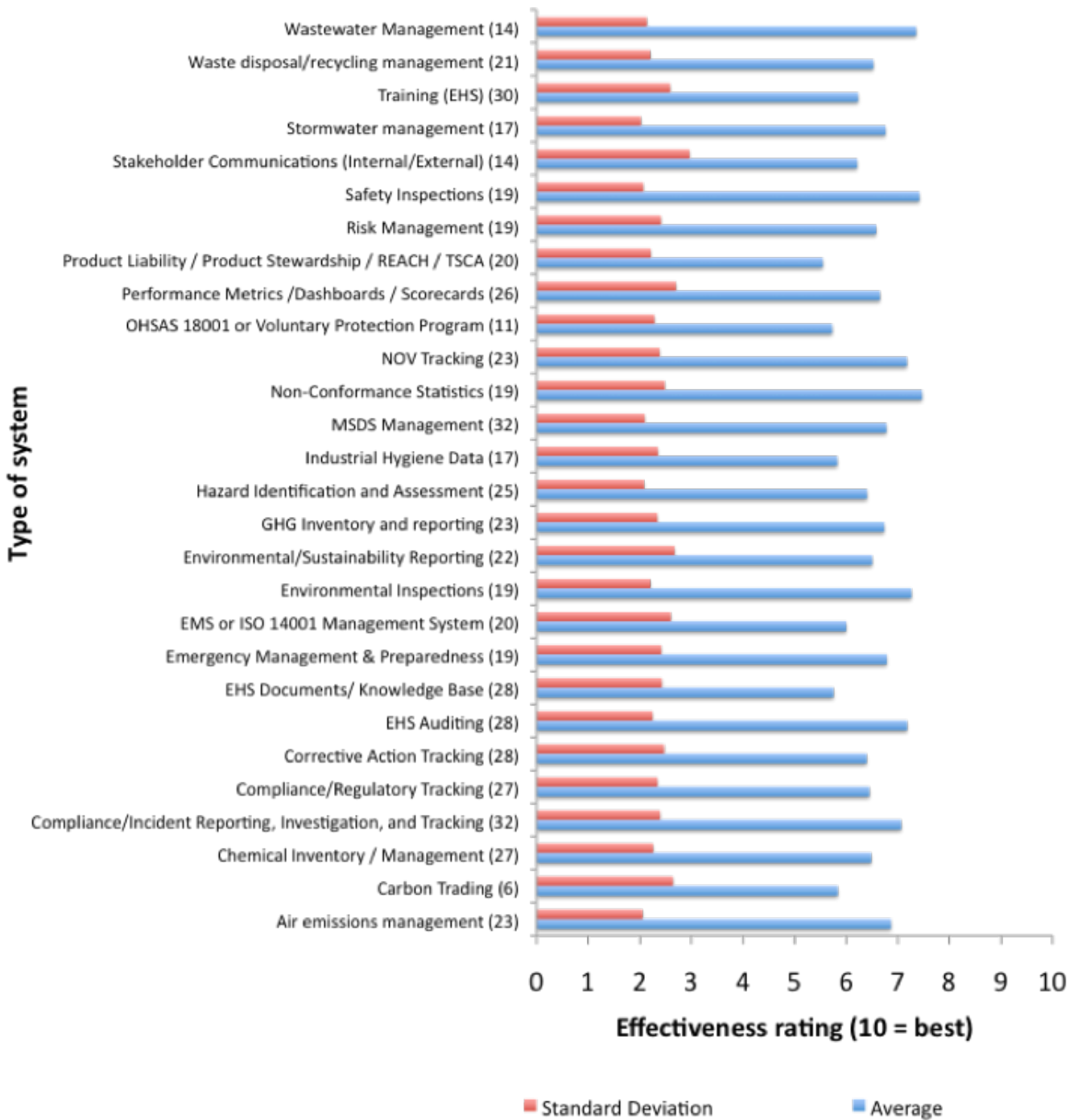
Survey question Q18: Rank your overall EHS MIS process, from 0 to 10

Presentation of Results

User Satisfaction with EHS Sub-systems

Ratings of EHS sub-processes were slightly higher, indicating satisfaction but suggesting some disappointment with overall integration.

Respondents' Ranking of EHS Sub-systems

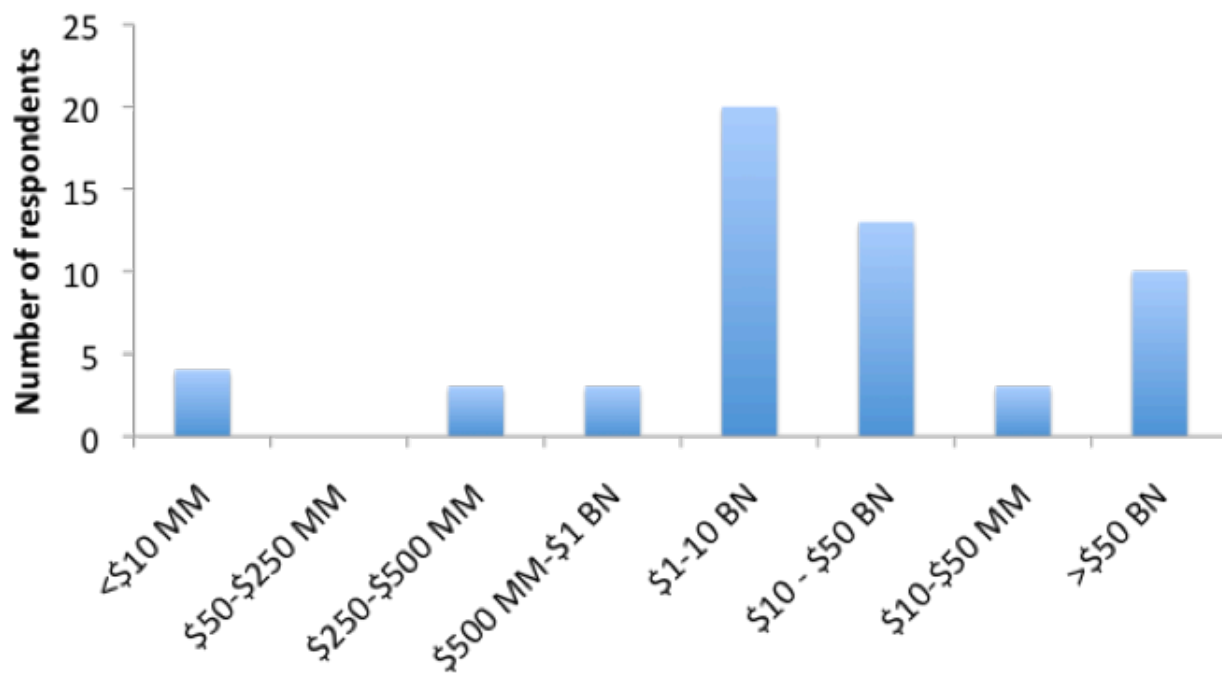


Numerals in parentheses indicate number of respondents by category
 Survey question Q15 (Part 2): Indicate your perception relative effectiveness of each system you have in your organization to support the EHS functions

Profile of Respondents

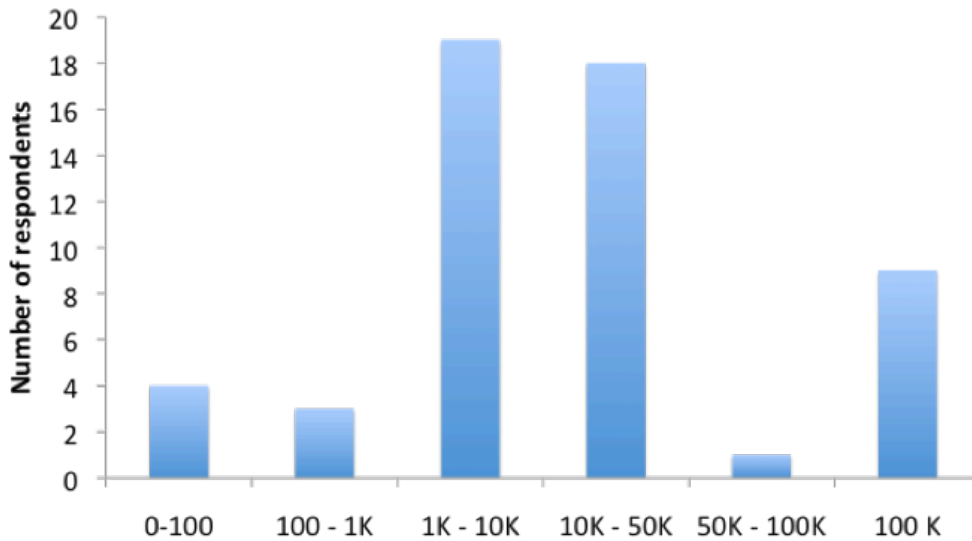
Respondents tended to be corporate EHS professionals from large multinational corporations; the majority worked for companies with more than 1000 employees. The dominant industry sector represented was manufacturing, but a wide variety of industries were also represented, including some who self-identified as “other”. This is consistent with the scope and importance of EHS MIS across industry sectors. Selected survey data is represented below, to demonstrate the size and geographical scope of the respondents’ companies.

Total Company Sales



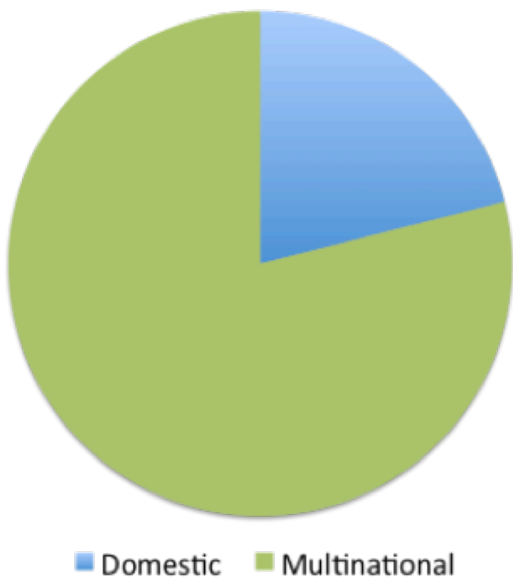
Survey question Q4: What is your enterprise size in total annual sales?

Enterprise Size by Number of Employees



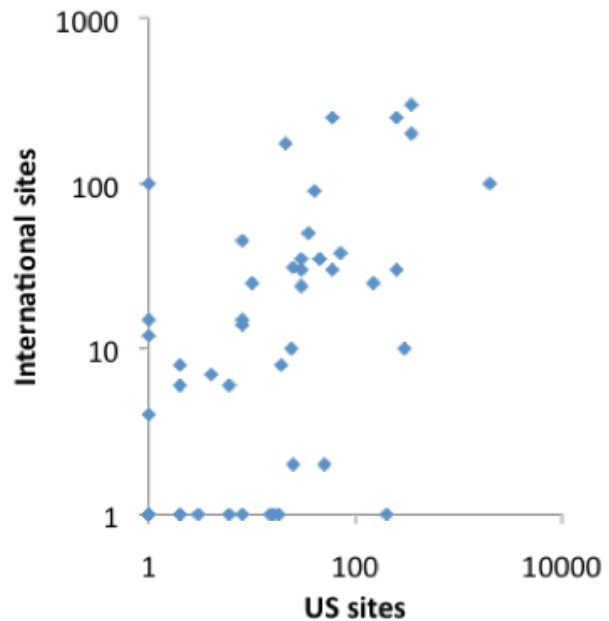
Survey question Q3: What is your enterprise size in total number of employees?

Respondent Company Type



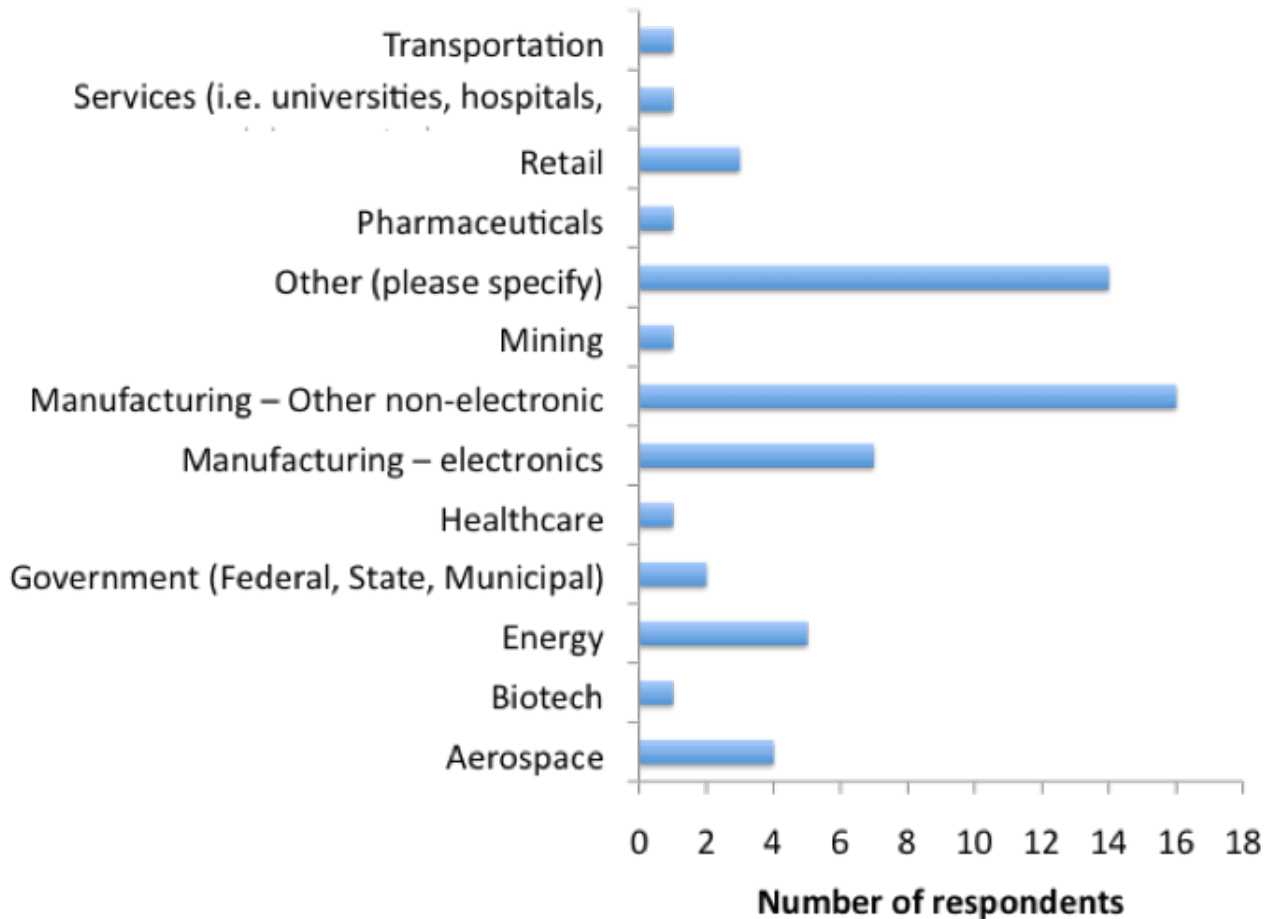
Survey question Q5: Is your organization domestic or multinational?

Number of US and International Production Facility Sites



Survey question Q10/11: Number of US/international production facilities in your organization

Industry Representation

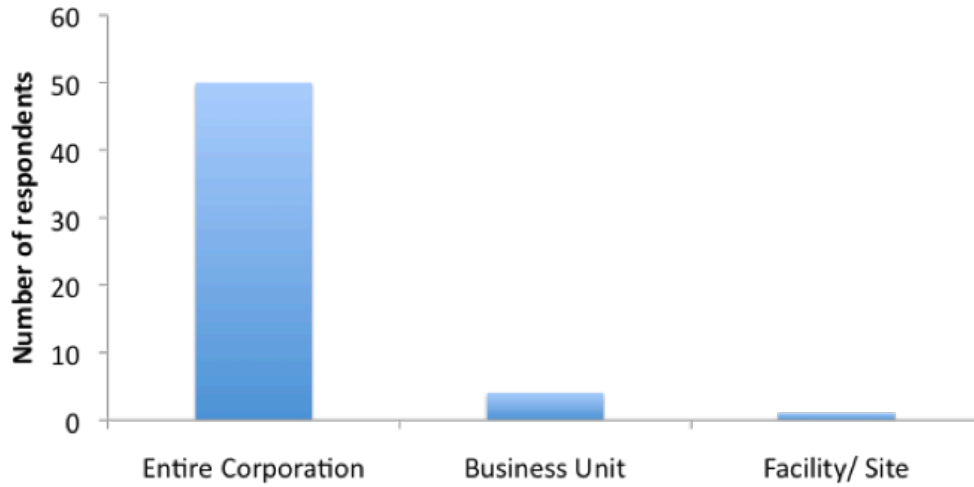


Survey question Q6: What industry sector are you?

Several other categories were included in the survey, but no respondents identified themselves as belonging to the categories: Agriculture, Banking/Finance, Hospitality, Insurance/Real Estate.

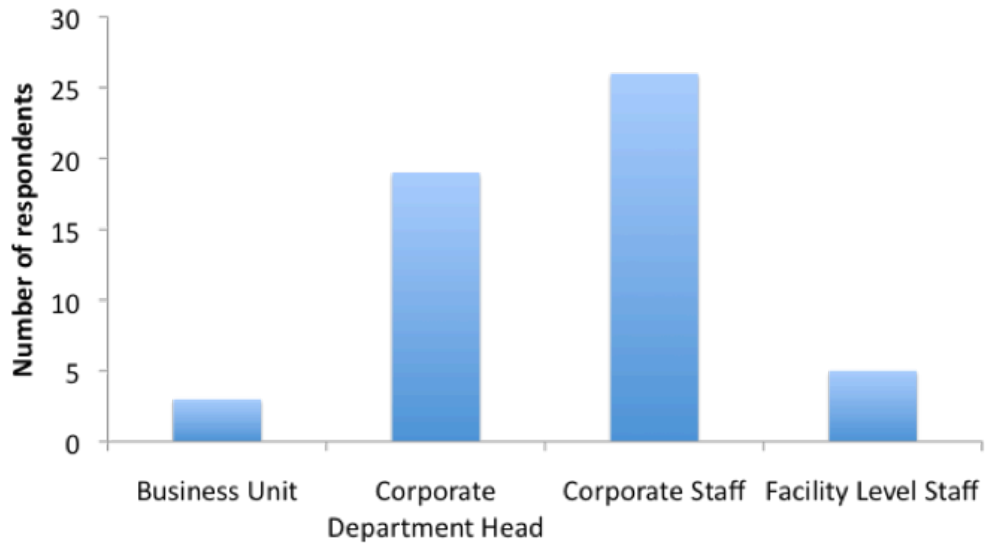
Other (please specify) included: Chemical Manufacturing and Distribution, Consumer Goods Food Manufacturing, electric generation, Energy Management, Food & Beverage Manufacturing, Food service, Healthcare related, Manufacturing - Automotive, Manufacturing - Chemicals, Manufacturing IT Technology, Occupational Safety and Health, Petrochemical, Professional Services, Consulting, Technology & Tech Services

Respondent Corporation Affiliation



Survey question Q8: Business Level: Please indicate if you are answering for your entire corporation or a business unit that operates a separate and distinct EHS management information system.

Respondent Job Description



Survey question Q9: What is your role in your organization?

Survey Questions

(Please note this list has been edited to fit this presentation format.)

1. Company Name
2. What is your enterprise size in total number of employees?
3. What is your enterprise size in total annual sales?
4. Is your organization domestic or multinational?
5. What industry sector are you in?
6. For the purposes of this survey, are you responding on behalf of which business level?
7. What is your role in your organization?
8. How many U.S. production facilities do you have in your organization?
9. How many international production facilities do you have in your organization?
10. How many environmental/EHS staff members are at the headquarters of your organization?
11. How many environment/EHS staff members do you have at your plants or facilities?
12. What is the total number of full-time equivalent staff members you have working on environmental/EHS information systems throughout the organization?
13. Please check the boxes below to indicate which electronic EHS information systems you have in your organization to support the EHS functions, and at what level. For the ones that you have, please identify if they are implemented at a specific plant or facility, enterprise-wide or not applicable. Then rank your perception of the relative effectiveness of each system.
14. Please check the box if your EHS information system integrates with, shares or retrieves data from any of the following business information systems, or if you expect it to by the end of calendar year 2011.
15. What percent of your active applications are: Rank your overall EHS MIS process from 0 to 10. Please rank by the level of EHS MIS sophistication predominately utilized at your facility, division or corporate offices.
16. If your company uses an off-the-shelf system, please indicate the system and maker of the systems you use.
17. How is the EHS MIS budget managed in your organization?
18. What is your organization-wide EHS MIS budget?
19. How is your EHS MIS budget allocated?

Appendix

Notes on the Analysis

Least squares linear regression results are included below for both the relationship of EHS full-time employees (FTE) to total FTE, as well as the relationship between EHS budget and total company revenue. Standard statistical t-tests were performed to determine whether or not the relationship was statistically significant. In each case the p-value was <.05, which indicates that the relationship is statistically significant. The modest R-squared values are reflective of both the fact that the data was bucketed and some degree of variability in the relationships, which is understandable given the variety of industries represented and the differing needs of each.

EHS Budget ~ Total Sales Regression Model

A linear relationship can be demonstrated to exist between company sales and EHS systems budget. Standard linear regression output indicates that

$$\text{EHS MIS Budget} = 264,500 + .00005122 * (\text{Total Sales})$$

This can be interpreted as indicating that for every additional dollar in sales, we can expect .00005 dollars to be budgeted towards EHS systems. Put another way, for every \$20K in sales, we can expect one dollar for the EHS budget. The p-value for this relationship is approximately .02, which indicates that it is statistically significant. R-squared is modest, at .17, but this reflects the sources of variability mentioned above. Note, this calculation converts bucketed data to numeric by taking the average bucket value.

The full regression output is included here, for reference:

EHS Budget ~ Total Company Revenue model output, including t-test

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	2.645e+05	6.498e+05	0.407	0.6871
Company.Sales	5.122e-05	2.116e-05	2.421	0.0222 *

 Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 2843000 on 28 degrees of freedom
 Multiple R-squared: 0.1731, Adjusted R-squared: 0.1436
 F-statistic: 5.861 on 1 and 28 DF, p-value: 0.02222

Source questions: Q4 and Q24

EFS FTE ~ Total company employee model

A linear relationship can also be demonstrated between EHS FTE and total company employees. Standard linear regression output indicates that

$$\text{EHS FTE} = 1.35 + .001 * (\text{Total Company FTE})$$

This can be interpreted as indicating that for every additional 1000 company FTE, we can expect one additional EHS FTE. The p-value for this relationship is approximately .001, which indicates that it is statistically significant. R-squared is modest, at .21, but this reflects the sources of variability mentioned above.

EHS FTE ~ Total FTE model regression output, including t-test

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	1.354	9.678	0.140	0.889
Total.Employees	0.001	<.001	3.415	0.001 **

Residual standard error: 47.27 on 43 degrees of freedom
 Multiple R-squared: 0.2134, Adjusted R-squared: 0.1951
 F-statistic: 11.66 on 1 and 43 DF, p-value: 0.001

Source questions: Q3 and Q14

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The National Association for Environmental Management (NAEM)

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