



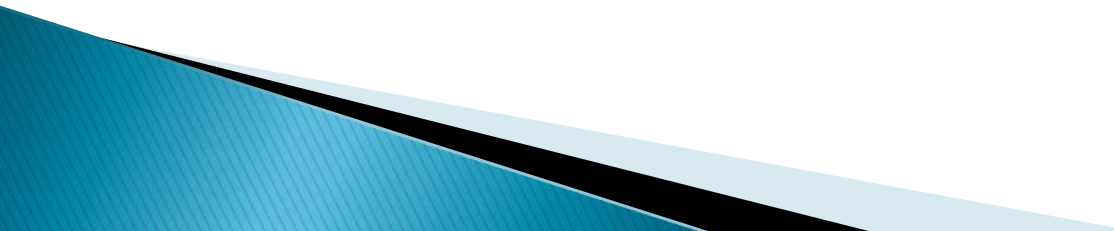
# The rise and impact of certification on the electronics recycling industry

R2 Solutions  
[www.r2solution.org](http://www.r2solution.org)




Promoting environmentally responsible practices throughout the electronics recycling industry.

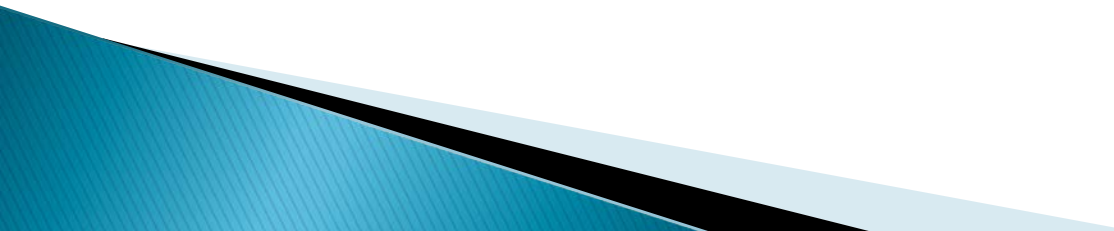
# Why the need for certification?

- ▶ Electronics contain potentially hazardous constituents.
  - ▶ Data mismanagement can put firms and recyclers at risk.
  - ▶ Electronics contain valuable materials that should be recovered.
  - ▶ Customers need confidence in recycling services.
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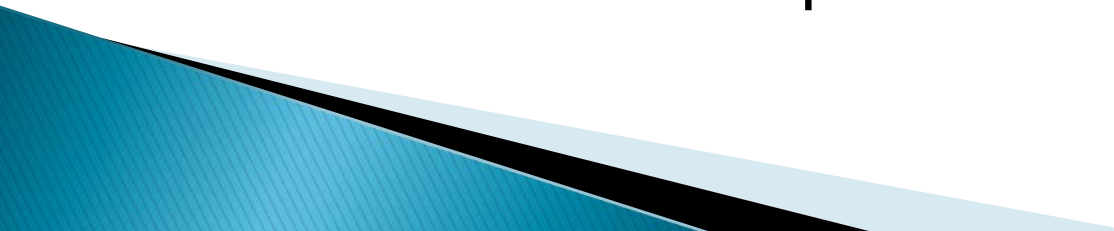
# Certification landscape

- ▶ ISO 9001, 14001 (environmental and operational management systems)
  - ▶ OHSAS 18001 (health and safety management system)
  - ▶ RIOS (Environmental Health and Safety Management System)
  - ▶ IDC – GRADE (IT Asset Disposal)
  - ▶ NAID – Data destruction
  - ▶ R2 Standard
  - ▶ E-Stewards
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# Demand for certification


- ▶ Federal government announced they will only contract with certified electronics recyclers.
  - ▶ Companies like Dell, and other OEMs have made commitments to only use certified recyclers.
  - ▶ Some state programs are requiring certification to either R2 or e-Stewards.
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# R2 Standard and R2 Solutions

- ▶ Developed over a 2.5 year multi-stakeholder process.
  - ▶ First recyclers became certified to R2 in January 2010.
  - ▶ R2 Solutions was formed in September 2010 to serve as the non-profit housing entity for the R2 Standard.
  - ▶ There are more than 130 R2 certified facilities around the globe.
  - ▶ Through the support of R2 Solutions, the R2 Standard continues to evolve through an open, multi-stakeholder process.
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# Content of the R2 Standard

## THE R2 PRACTICES

1. Environmental, Health, and Safety Management System
  2. Reuse, Recover, ..." Hierarchy of Responsible Management Strategies
  3. Legal Requirements
  4. On-Site Environment, Health, and Safety
  5. R2 Focus Materials
  6. Reusable Equipment and Components
  7. Tracking Throughput
  8. Data Destruction
  9. Storage
  10. Facility Security
  11. Insurance, Closure Plan, and Financial Responsibility
  12. Transport
  13. Recordkeeping
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# R2 Solutions supporting the R2 Standard

## Goals of the organization:

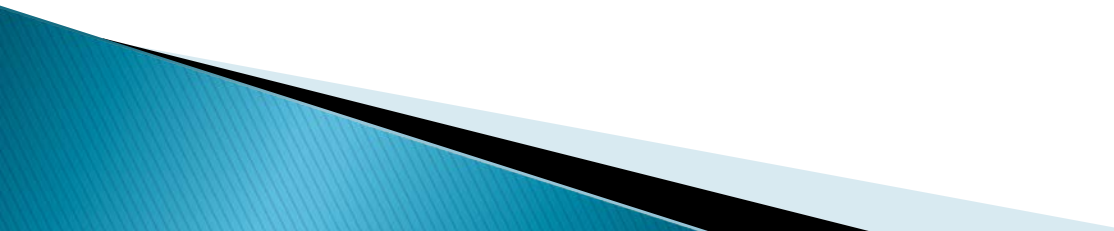
- ▶ Assure open, transparent, and balanced governance of the R2 Standard
- ▶ Educate about responsible recycling practices
- ▶ Promote the use of the R2 Standard

Survey aimed to collect information that would support all three of these goals.



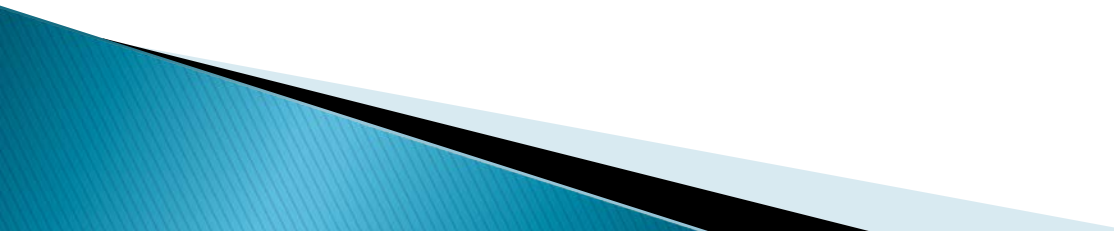
# 2011 Survey of R2 certified recyclers

R2 Solutions surveyed all certified recyclers to better understand:

- ▶ How the R2 Standard has shaped operational performance in the industry,
  - ▶ What the experience of becoming R2 certified and operating as an R2 certified recycler has been like,
  - ▶ The areas of the Standard where further development may be needed; based upon the first-hand experience by R2 certified recyclers.
  - ▶ The effectiveness of R2 Solutions' support to those seeking R2 certification, and educating the public about the value of R2 certification.
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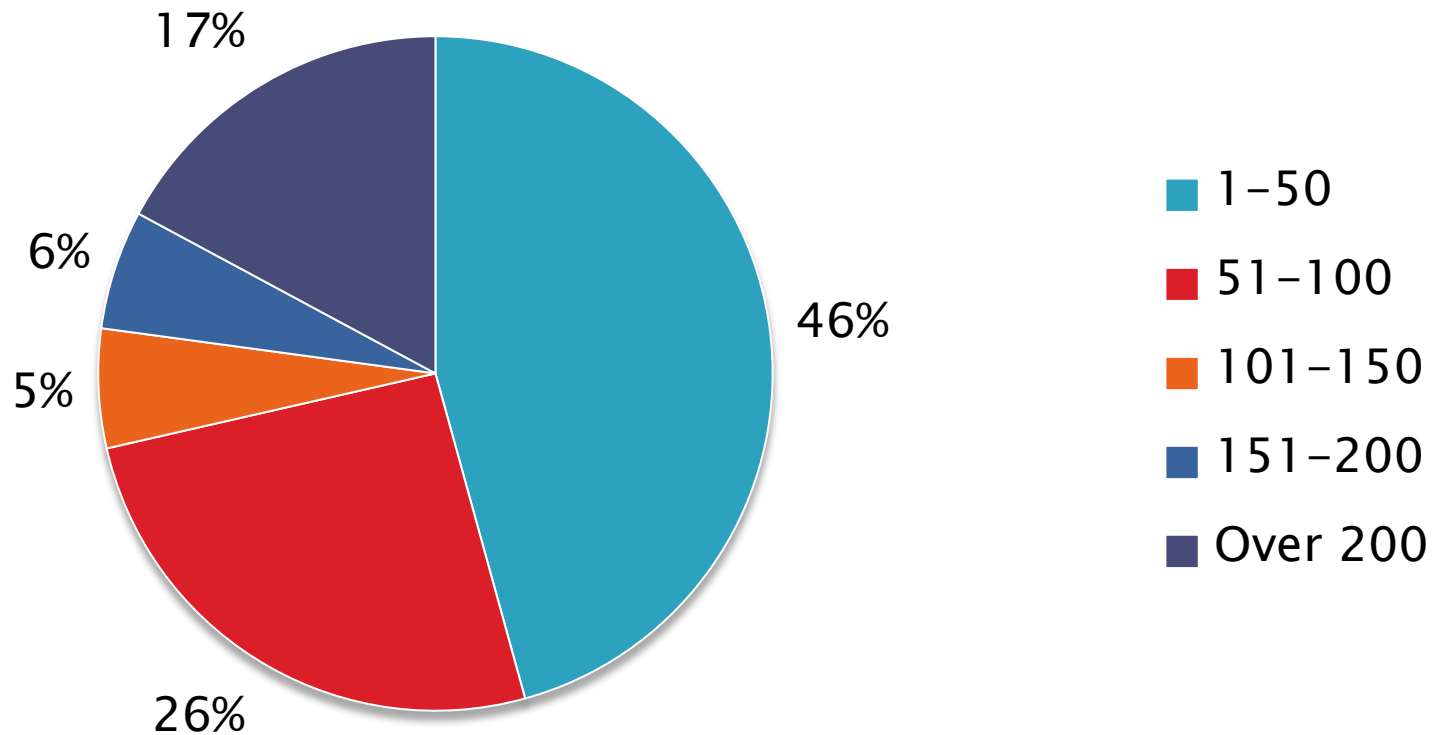


# 2011 Survey of R2 certified recyclers

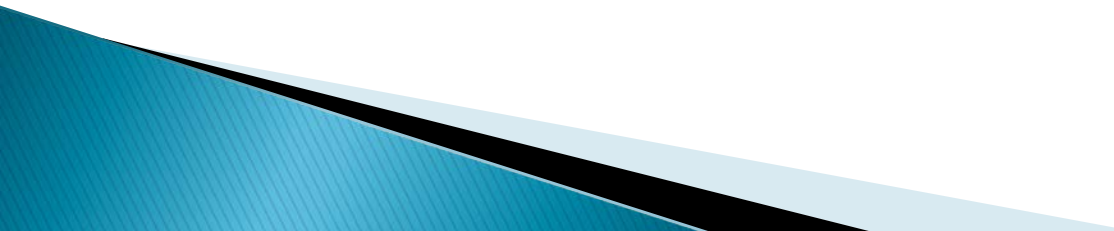
- ▶ Survey went to 52 recyclers, representing 112 facilities
  - ▶ Received 37 responses, representing 81 facilities
  - ▶ A little over a 70 percent response rate for recyclers *and* represented facilities
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# Nature of certified facilities

## No. of Employees

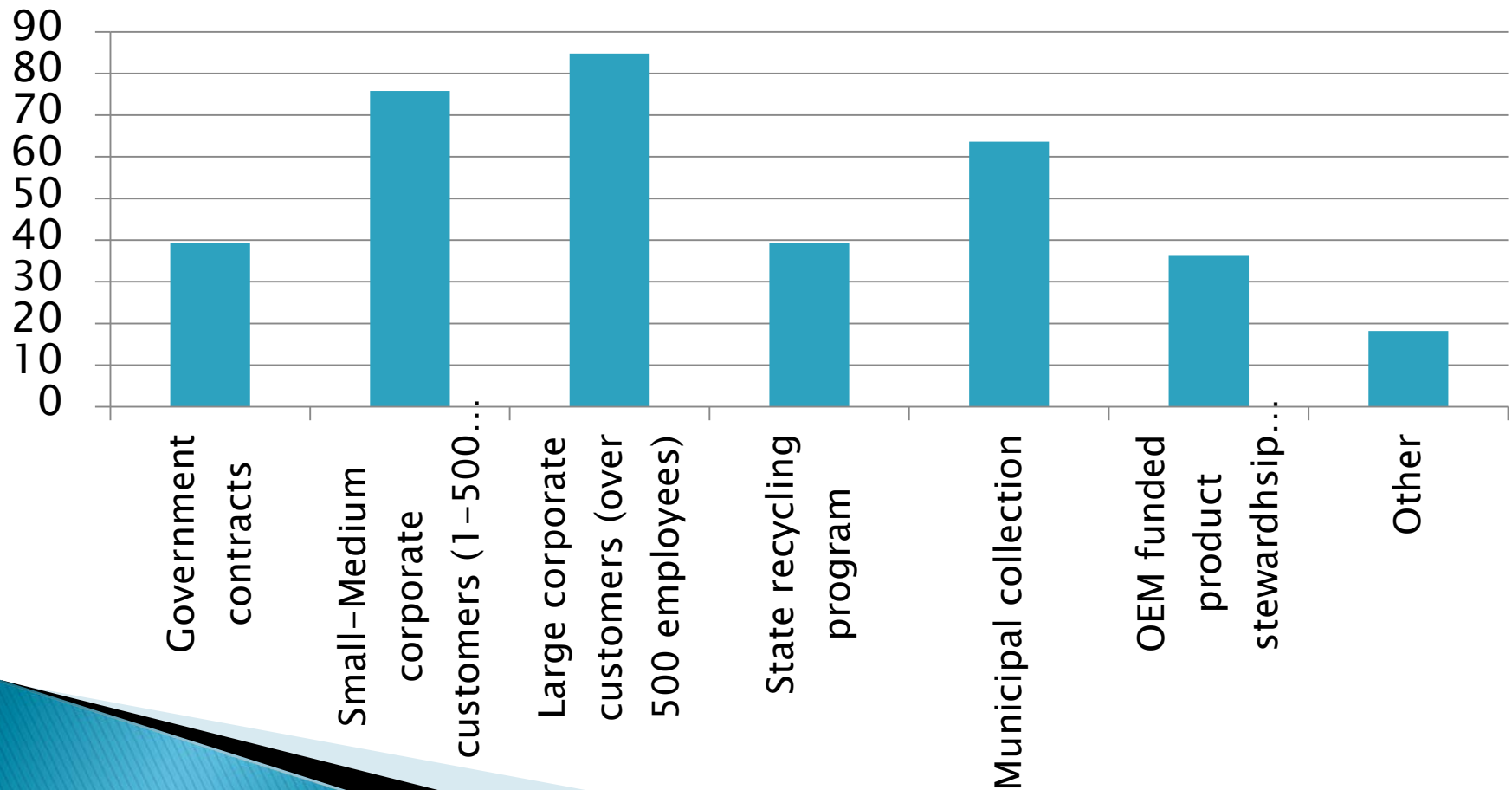


# Nature of certified facilities

- ▶ Combined capacity of reporting recyclers 347,754 tons/year.
  - ▶ Ranging from 200 t/y to 100,000 t/y
  - ▶ Those that reported reuse estimated an average 18.2% reuse rate.
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# Where volumes come from

Source of materials

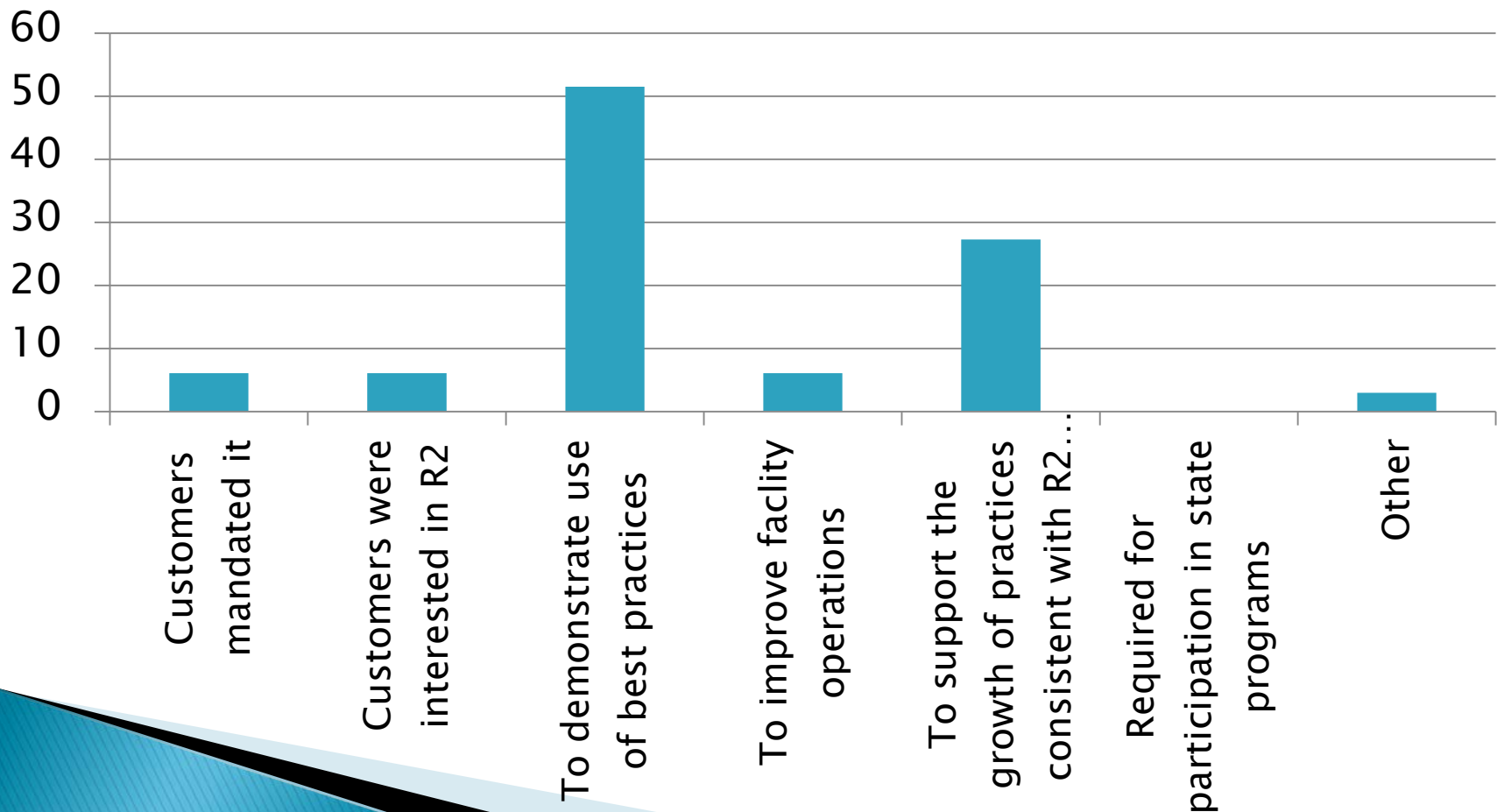


# Certification process

- ▶ Average timeframe for the certification process (from time they contracted with a CB until certification) – 8.2 months
  - Of the firms that reported the certification process took longer than 1 year, none had hired a consultant.
  - Everyone that hired a consultant obtained certification in less than one year.
- ▶ 54% sought the help of a consultant to prepare for the audit.
  - 59% of those firms retained the consultant to help ensure ongoing conformance.

# Why R2?

## Primary reason for choosing R2 certification



# Environmental, Health and Safety Management Systems

- ▶ Did they have a certified management system in place before being R2 certified (ISO, RIOS, etc.)?

Yes	No
48.5%	51.5%

- ▶ If no, did they seek a certified EHSMS at the time of the R2 audit?

Yes	No
81.8%	18.2%

- ▶ While a certified EHSMS is not required, 91% of respondents now have it.

# Operational changes as a result of R2

## Operational changes that occurred because of certification

Operational change	Percent of respondents
Sought different downstream vendors that meet R2 requirements.	50.0%
Adopted an EHSMS plan where there had previously been none.	42.9%
Modified an existing management system to meet R2 requirements.	60.7%
Have a plan for continuous improvement for EHSMS for the first time	46.4%
Have closure plan in place for the first time	46.4%
Separating and managing focus materials differently, according to the Standard	50.0%
During audit preparation discovered we had not been knowledgeable of, or in compliance with all applicable regulations, but are confident the facility is now in full compliance.	46.4%



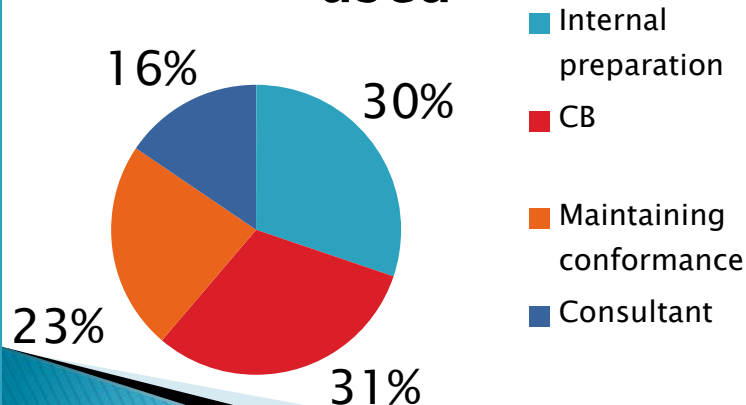
# Cost of certification: Large recyclers (Over 100 employees)

Average cost reported = \$127,333

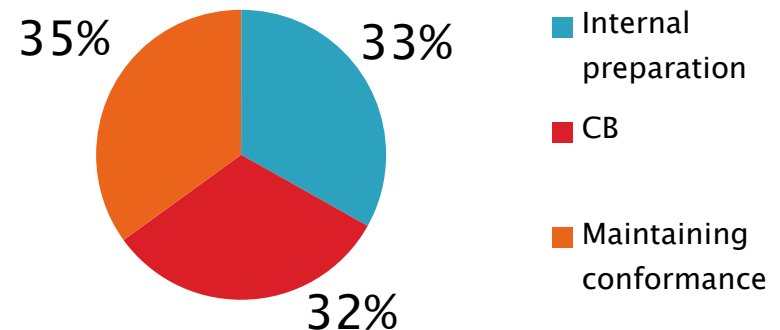
Average number of certified facilities = 3

Average cost of certification per facility = \$42,444

**Distribution of costs  
if consultant was  
used**



**Distribution of cost if a  
consultant was not  
used**



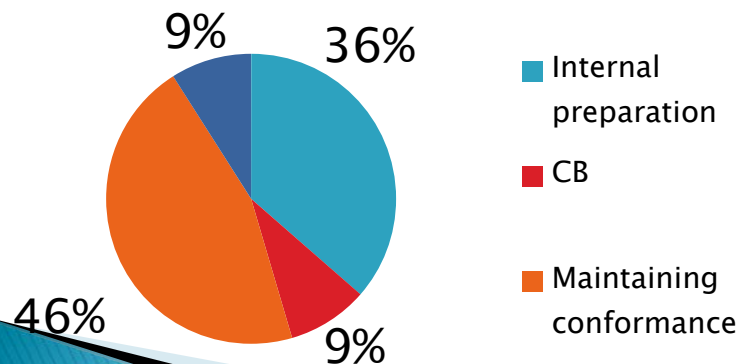
# Cost of certification: Medium recyclers (50–99 employees)

Average cost reported = \$91,666

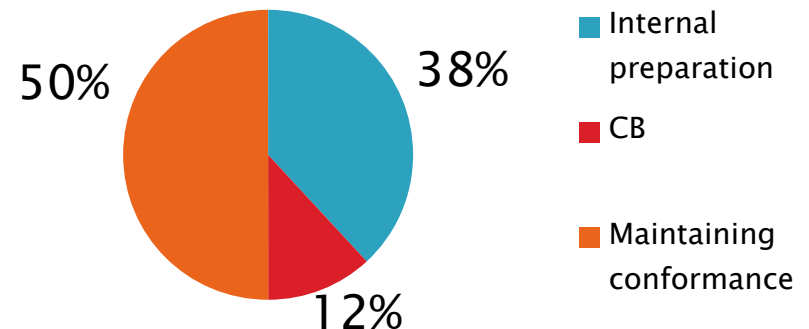
Average number of certified facilities = 3

Average cost of certification per facility = \$30,555

**Distribution of costs  
if consultant was  
used**



**Distribution of cost if a  
consultant was not  
used**



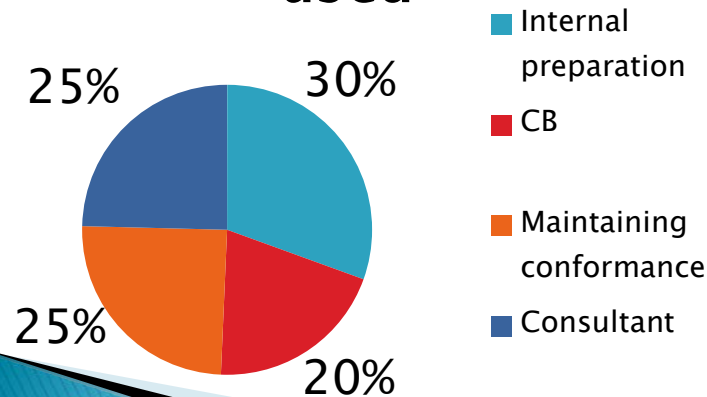
# Cost of certification: Small recyclers (less than 50 employees)

Average cost reported = \$79,887

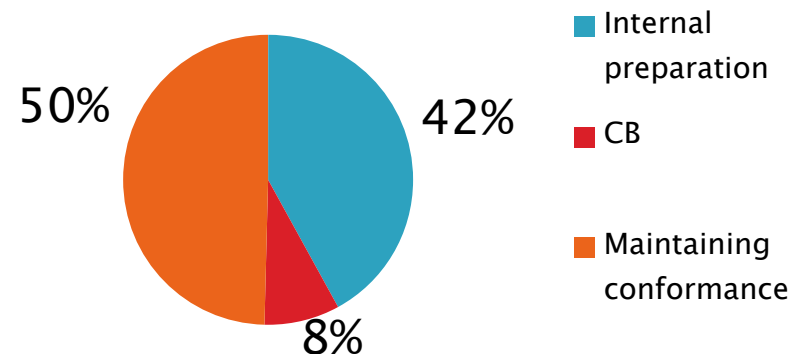
Average number of certified facilities = 1.2

Average cost of certification per facility = \$66,572

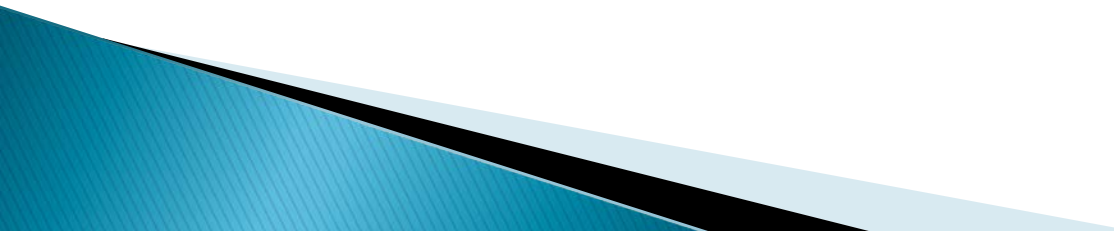
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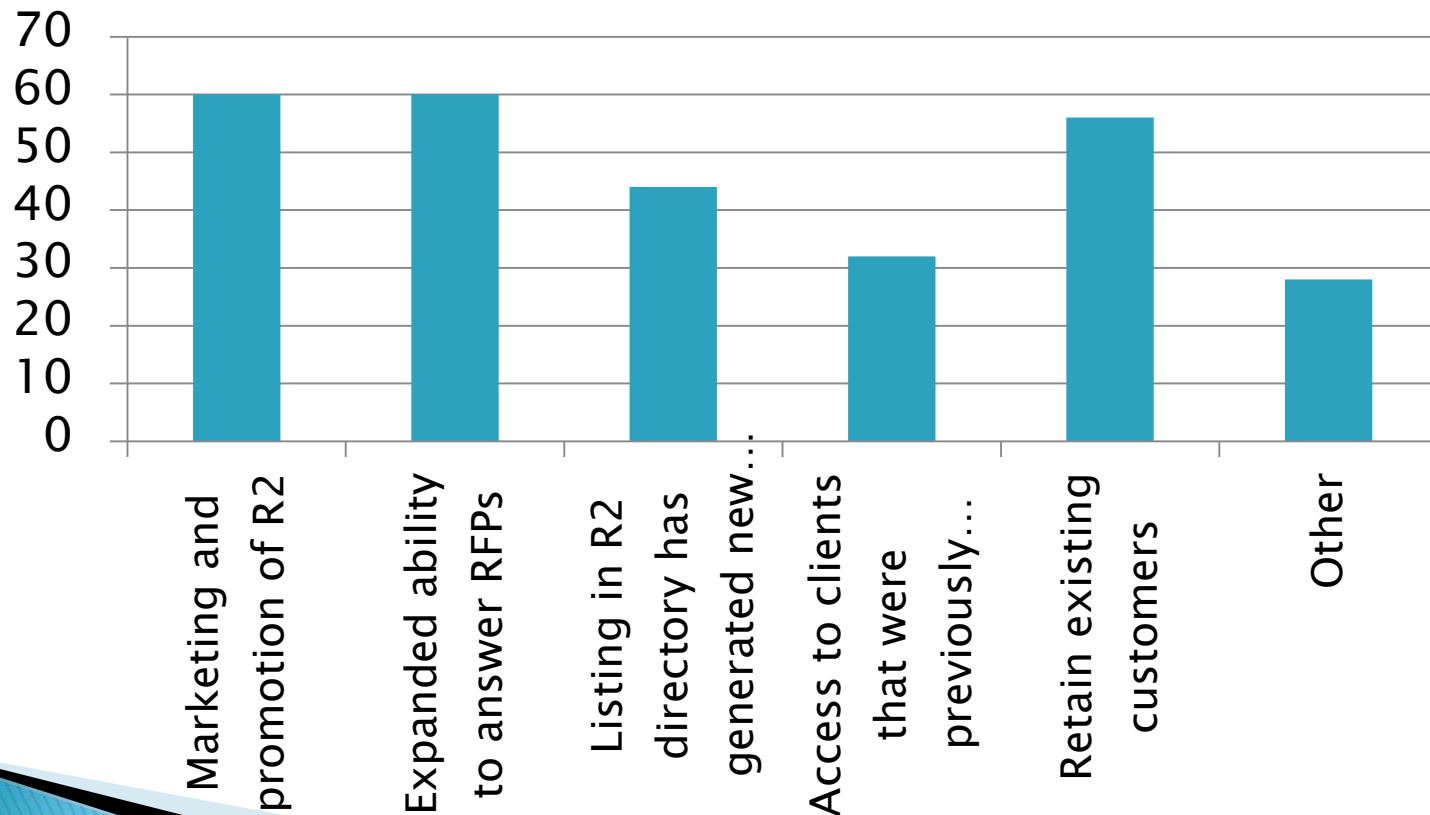
# Recommendations for improving the certification process

- ▶ Formally integrate ISO, OHSAS or RIOS so recyclers don't have to be audited separately on those.
  - ▶ Continue a site based certification process, but reduce the time/effort to conduct a Stage 1 audit for multiple sites which use a previously audited management system.
  - ▶ Offer multi-site certification.
  - ▶ Develop guidance document.
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# R2's impact on business

79.3% agree that R2 certification has helped attract business.

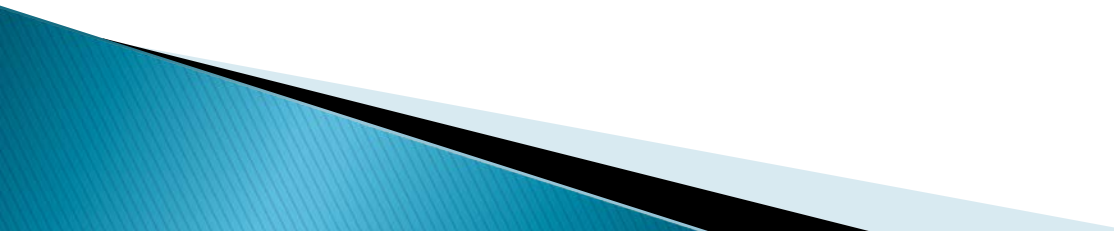
## How R2 has helped with clients



# Business growth attributed to R2

- ▶ 29% report adding employees
  - average of 9 employees.
- ▶ 21% report new investment
  - data destruction and data security, key functionality testing equipment, processing equipment, transportation trailers.

# Maintaining conformance – Challenges

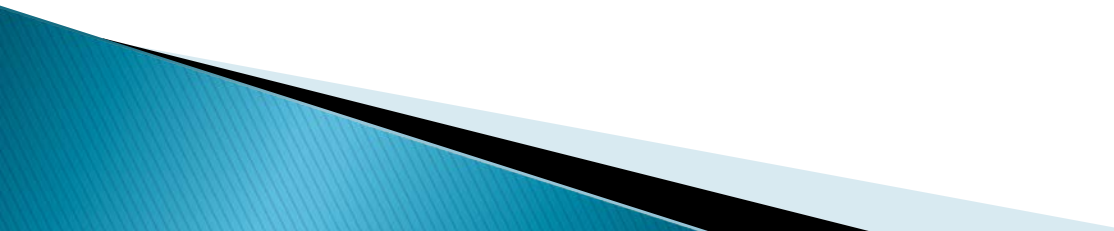
- ▶ Maintaining buy-in of full disclosure from downstream vendors.
  - ▶ Auditing transportation providers for brokers.
  - ▶ Tracking safety record of freight companies can be challenging.
  - ▶ Maintaining all the requisite records.
  - ▶ Performing continuous improvement activities on a regular basis.
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# R2 performance


Statement	True	False
The number of on-site audits from customers has decreased.	12%	88%
The on-site audits by customers have been less time consuming	68%	32%
We have had customers ask us to obtain additional certifications, or whether we are considering additional certifications.	64%	36%
I feel more confident that the downstream vendors I am using are handling materials in an environmentally safe and legal manner.	84%	16%
Work place safety and/or worker testing have improved.	80%	20%
The PDCA model has been an effective system for ensuring ongoing conformance.	96%	4%
R2 has been worth the time and investment.	96%	4%



# Conclusions – Implementation of R2

- ▶ Certification appears to be costing small recyclers more on a per-facility basis, at least if no formal EHSMS plan was already in place.
  - ▶ Certification is creating major operational improvements for companies that previously had no EHSMS in place.
  - ▶ CBs account for 1 / 3 or less, of the total costs of certification and compliance.
  - ▶ Data suggests the use of a consultant may expedite the audit preparation process and recyclers have found value in retaining consultants after certifications are achieved.
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# Conclusions – Implementation of R2

- ▶ Certification is affecting downstream vendor selection, and creating greater confidence in the downstream vendor practices.
  - ▶ R2 Certification has not reduced the number of facility audits, but does seem to expedite them.
  - ▶ Certification seems to be a helpful tool in gaining recognition in the marketplace.
  - ▶ Certified recyclers feel that R2 certification has helped them attract business.
  - ▶ May see more double certification in the marketplace.
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# Questions?

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