

# Materials Handling

## SOFTWARE TECHNOLOGY USAGE STUDY

CONDUCTED BY:

**PRG**  
PEERLESS RESEARCH GROUP

**MODERN**  
MATERIALS HANDLING

April 2017

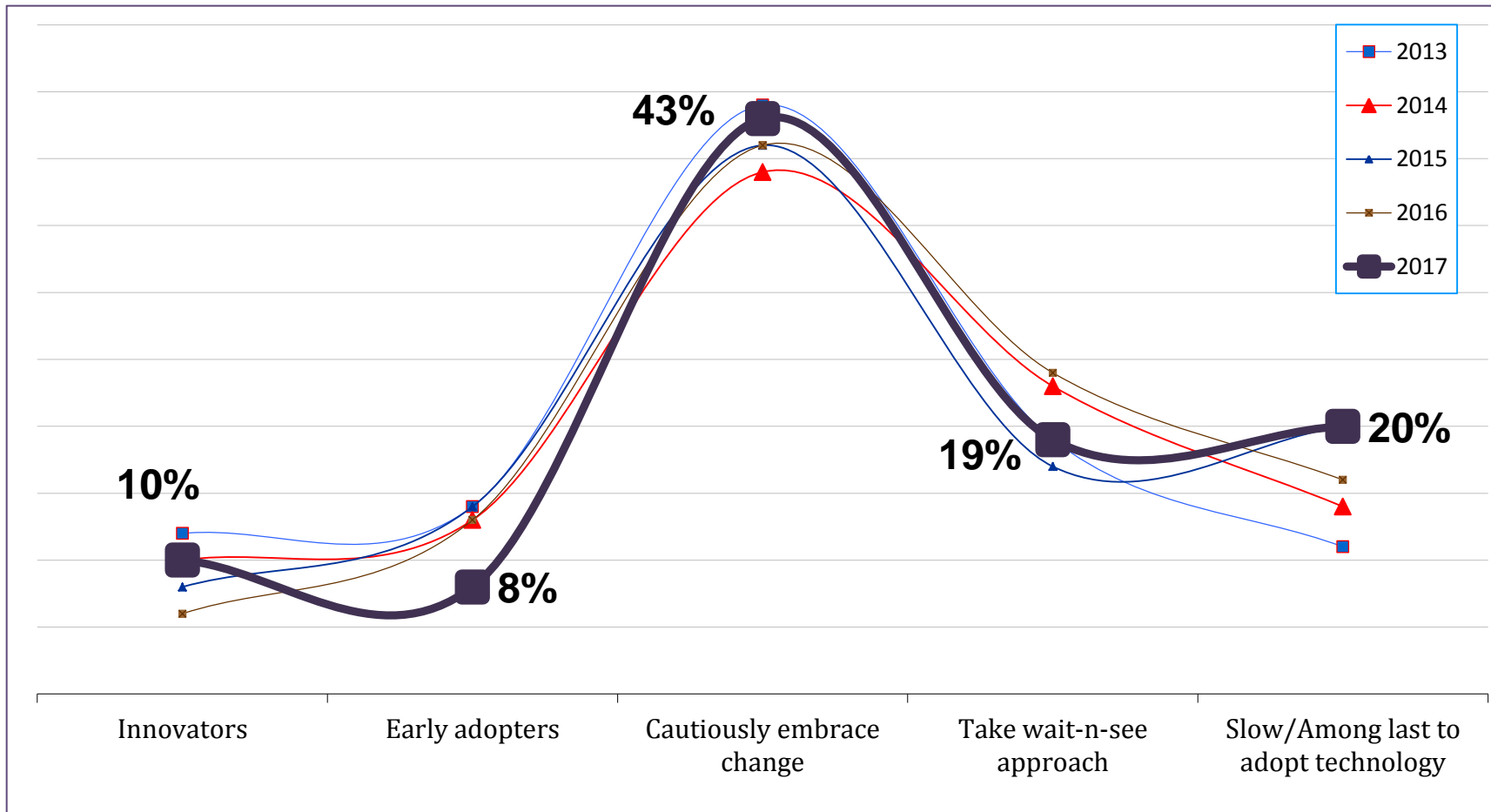
## Introduction and Methodology

### Methodology:

- Field: March/April, 2017
- Method: Internet by email invitation
- Sample: Subscribers to *Modern Materials Handling* magazine
- Qualifications: Personally involved in using, evaluating, or purchasing software for their company's materials handling operations
- Incentive: Raffle for a \$100 amazon.com e-card
- Response: Response to waves 2013 through 2017 follows:

Field Dates	2017	2016	2015	2014	2013
# of completes	213	109	192	134	405
Margin of error at @ 95% confidence level	+/-6.9%	+/-9.7%	+/- 7.4 %	+/- 9.0	+/- 5.0%

How would you best describe your company's adoption of technology for your materials handling procedures?

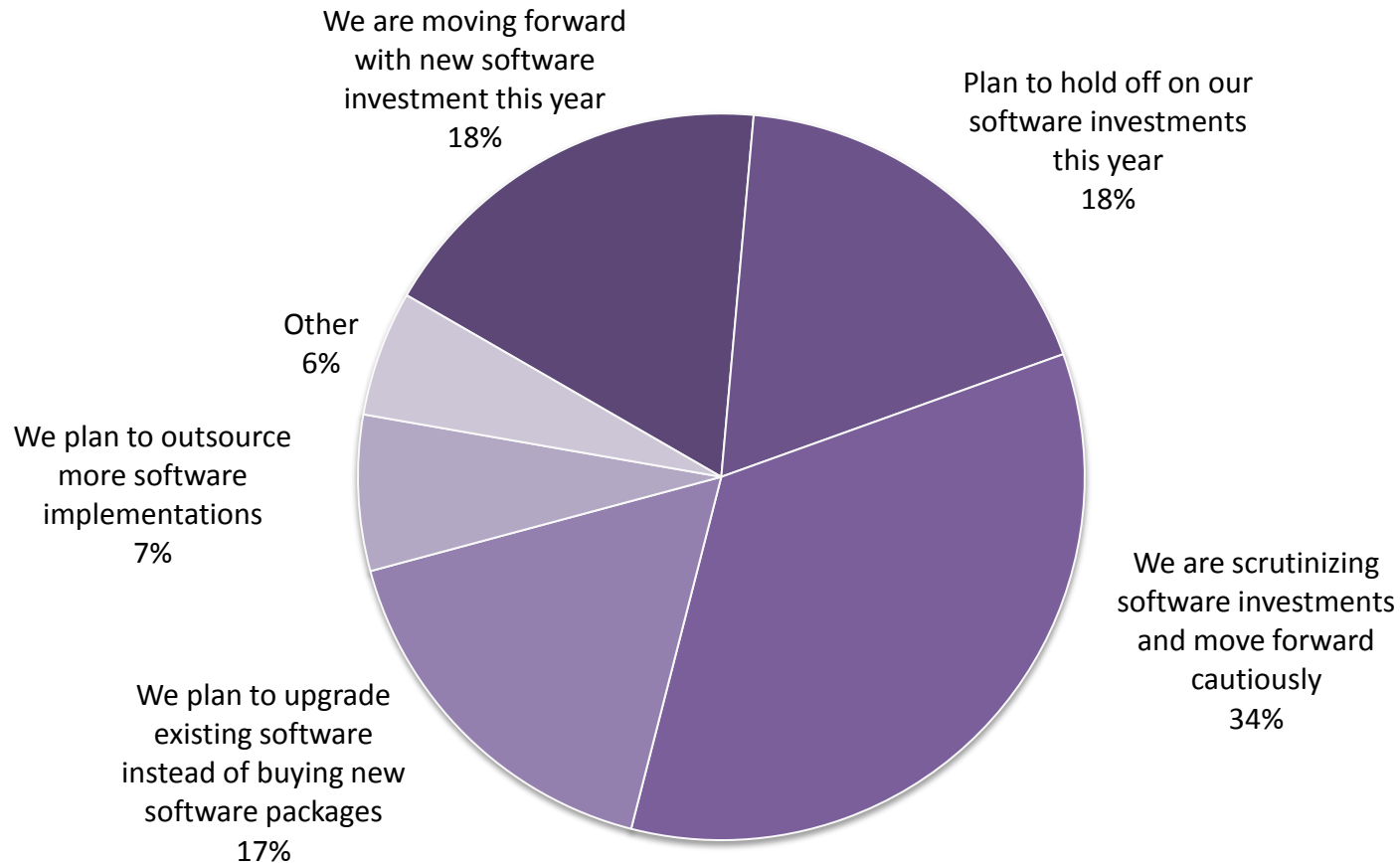


# Materials Handling SOFTWARE TECHNOLOGY USAGE STUDY

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**How has the current economic climate changed your company's approach to adopting materials handling management software?**





During the last two years what issue, challenge or problem have you looked to solve/address through the implementation of a materials handling management software application in your warehouse or distribution operation?

Accelerated ecommerce order fulfillment.

Achieving improved accuracy & efficiency simultaneously

Aging technology is costly to modify to try new concepts

Antique EVO ERP System.

Auto-bagging

Automated, quick opening dock doors

Automating processes

Backup software

**Barcode and scanning** technology and truck mount hardware.

Barcoding of equipment

Best practice of storage, generation of location information in detail. We are currently adapting our 3PL's software for our use.

better and more timely replenishment, additional methods for allocating and picking customer orders

Better flow of product

**Better inventory control**, lot tracking, multi-warehouse fulfillment

Better real-time integration across platforms

BOL tracking

Capital and resources

Communication between the in house software and implementation of new software. End user training.

communications and security

Consistency between our WMS and ERP systems.

Consolidation of system instances.

Consumption of raw materials for production using AX Dynamics.

Cost

Cost per unit reduction

Data review in reporting

Deciding on which of the many methods/technologies is best suited for our needs.

Distribution analysis

Dull, dirty, dangerous jobs

**During the last two years what issue, challenge or problem have you looked to solve/address through the implementation of a materials handling management software application in your warehouse or distribution operation?** *(continued)*

E-Commerce parcel shipping automation - Combining pick and put-to-light systems, scanning, dimensioning, weighing, conveying, Print & apply technologies into integrated turn key solutions)

Effective FIFO and inventory control, more efficient productivity monitoring.

Efficiency

**Efficiency**, increase profitability and shorten production times.

Enabling bar code scanning

Equipment Upgrades

Food Safety Inspection Documentation

Ergonomic issues relating to our aging workforce

Ergonomics related to movement of boxes and pallets.

ERP upgrade rolling. Aiming for a unified platform instead of several different ERP's.

Fabrication planning and scheduling

Finding the right solution for our needs,

Finished Goods Inventory

**Fleet management**

Fleet management

For our Sales staff we have adopted a GPS tracking system that now allows our business development staff upload leads directly to our customer relationship management system based on the GPS coordinates from the visit to the customers site location. This has greatly improved productivity of the sales team & management can see in real time

General warehouse operations improvements.

Getting more business

Getting the mobile software to work at a speed worth using the technology.

Handling and processing efficiency to reduce labor and streamline processing.

**Hiring good , reliable workers, careful screening**

How to do velocity slotting

Implement productivity tracking systems for a benchmark and increase productivity.

Implementation of Mercury Gate TMS

Implemented a safety protocol, reconfigured warehouse.

Implementing a barcode system to expedite picking and placing parts in the stockroom.

Increasing warehouse capacity

During the last two years what issue, challenge or problem have you looked to solve/address through the implementation of a materials handling management software application in your warehouse or distribution operation? *(continued)*

Increasing warehouse capacity

Integration of multiple technologies in multiple locations across the globe.

Internal IT Support

Inventory accuracy through RFID applications

**Inventory accuracy**, efficient administration.

Inventory discrepancies

INVENTORY PROBLEMS

Inventory stocking to use point movement and tracking

Inventory transaction efficiency improvements is probably the biggest issue we've been looking at.

IT technology

KPI performance

Labeling error proofing

Labor reduction and throughput

Lead time and quality

Life Cycle management

Lifting and spray painting 100 pound parts

Logging and tracking incoming shipments

Logistics and shipping

Lowering costs

Maintenance management and reliability

Manual receiving and putaway to WMS

Many issues like changing from ERP system to SAP

Materials tracking in a warehouse

Mechanical way to handle product harvested from plate freezers

Mobility, identification of returned materials

Move to pick and pass conveying system.

New equipment justification.

New WM software packages are hard to mod and don't come stock with features that are needed for a 3PL

Newer technologies that are available including new platforms for these applications.

**During the last two years what issue, challenge or problem have you looked to solve/address through the implementation of a materials handling management software application in your warehouse or distribution operation?** *(continued)*

Not everyone understanding change.

OEM support is not quick enough and is too costly for both support and upgrades. We have implemented our own WMS where we can control upgrades and enhancements.

Only been here four months

Optimize capacity, lower operating costs and reduce downtime

Pick and put away issues

Picking efficiency

Powered industrial equipment tracking software/devices

Printing of bar code label from receipt and sale

Product movement.

Product tracking into loads

Productivity and accuracy

productivity changes in new software/hardware

Purchasing shrink-wrap robots to replace difficult and slow method of manually shrink-wrapping hundreds of pallets per day

Raw material storage and tracking

Receiving Goods and E-Commerce

Reducing expired material at our warehouse.

Reliability

**Reliability of the new technology scanner failures**

RFID

Robotics

ROI has to be there quickly or our small volume will not justify.

SAP Across Company.

Scanning accuracy

Securement practices and materials used for securement have been evaluated to determine best protection of cargo and practicality

Sending small quantity items to a customer in individual packages and using a marker to write the part numbers on the clear plastic bag // this was resolved by utilizing a hip printer connected to our scanner via wireless to be able to print bar code labels to apply to these on the fly.

Several issues the prior management staff had faced before we got here, including moving, storing and tracking materials.

Shelving to save space and to be more efficient.



**During the last two years what issue, challenge or problem have you looked to solve/address through the implementation of a materials handling management software application in your warehouse or distribution operation?** *(continued)*

Software for efficiency

Software integration with all systems

Speed, cost

Staging

Staging of orders, shortening pick times

Storage and retrieval of Frozen Materials. Tracking out time of materials

Supply chain issues stemming from production to final delivery before consumer displays.

Systems plugging

The ability to improve our forecasting capability and to comply with SSCC-18 pallet tag requirements.

Time

TMS, warehouse space consolidation, picking efficiency.

Too much inventory

Tracking incoming packages when delivered throughout our facility.

Training. Costs. Getting right products. Attacks on info.

Updates to our WMS are challenging.

UPDATING CURRENT SOFTWARE

Verification if inbound receipts.

**Warehouse management operations**

Warehouse management system

Warehouse space and traceability

We added robotic automation for our packing applications

We are a material handling integrator. We have run into situations where a customer demands a more sophisticated tracking of there inventory, but they have either very simple or no WMS software.

We had to up grade our software to track product from our plant to the customers warehouse.

We have implemented a new automated shrink wrap solution to help capture weights and dims for the customer. We are testing visual picking assist glasses to replace paper/RF picking.

We have looked at Goods to Person automation to try and improve thru put in the warehouse. We have also looked at upgrading our WMS software.

**During the last two years what issue, challenge or problem have you looked to solve/address through the implementation of a materials handling management software application in your warehouse or distribution operation?** *(continued)*

We have many conveying system to move Bulk Products. This is always a challenge due to the nature of our business. We process Millions of gallons per day of raw wastewater and the plant was built 70s (Some of it in 1950. We are retrofitting a lot of modern automation.

We have recently implemented barcode scanning and warehouse management system built into our ERP system to resolve inventory accuracy issues.

We have several DC's in several provinces (largest is 85,000sq ft.) Transfer orders to our branches from the DC's are not well coordinated

We transitioned from a 4 distribution center model to a hub and spoke model and opened a master distribution facility to support the now regional distribution centers. The magnitude of this transition has been a bit more than expected.

We've looked into designing a zone system for stock products and raw material.

Wireless connection issues in a large warehouse

WMS integration

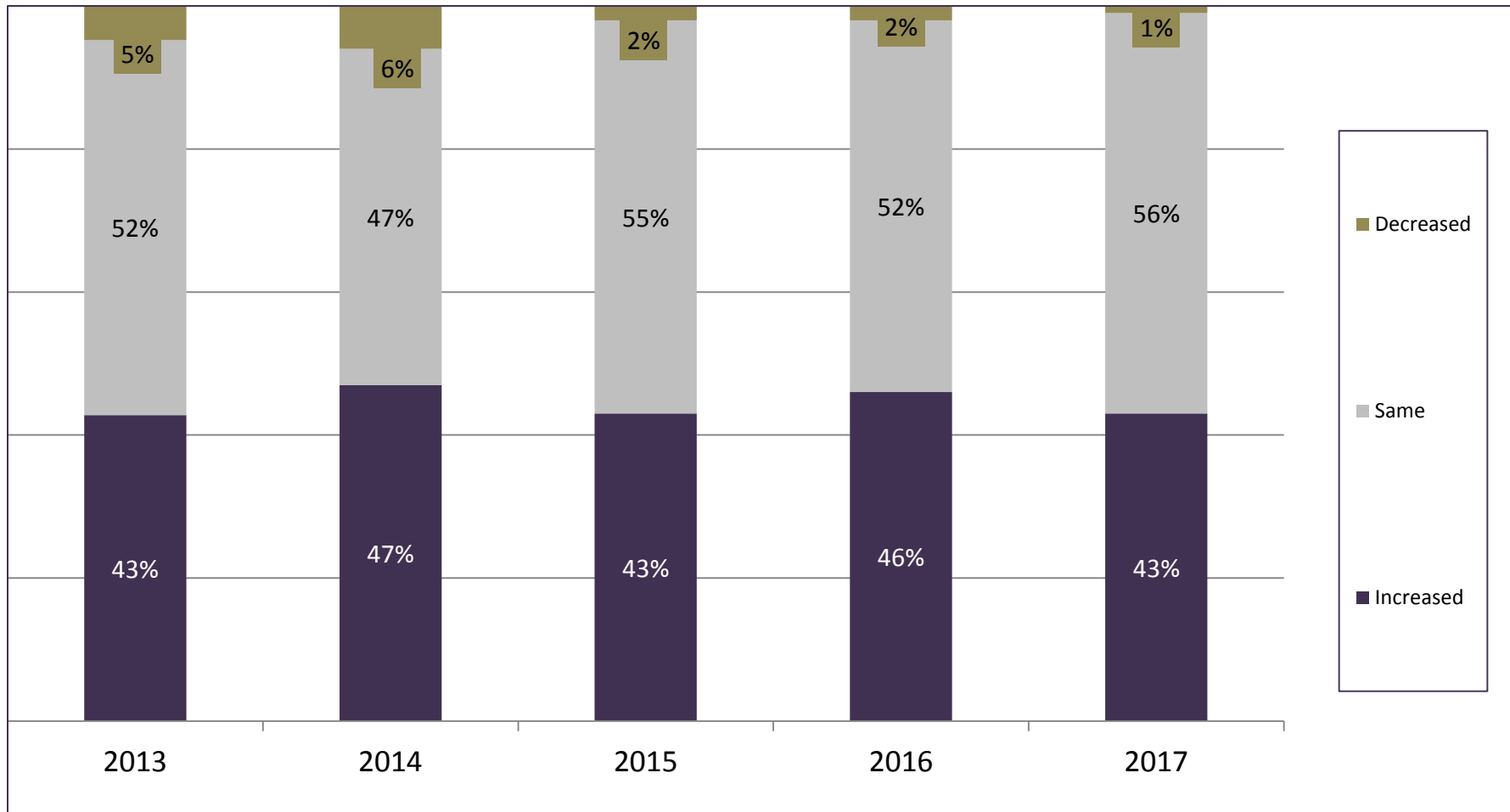
Yard management

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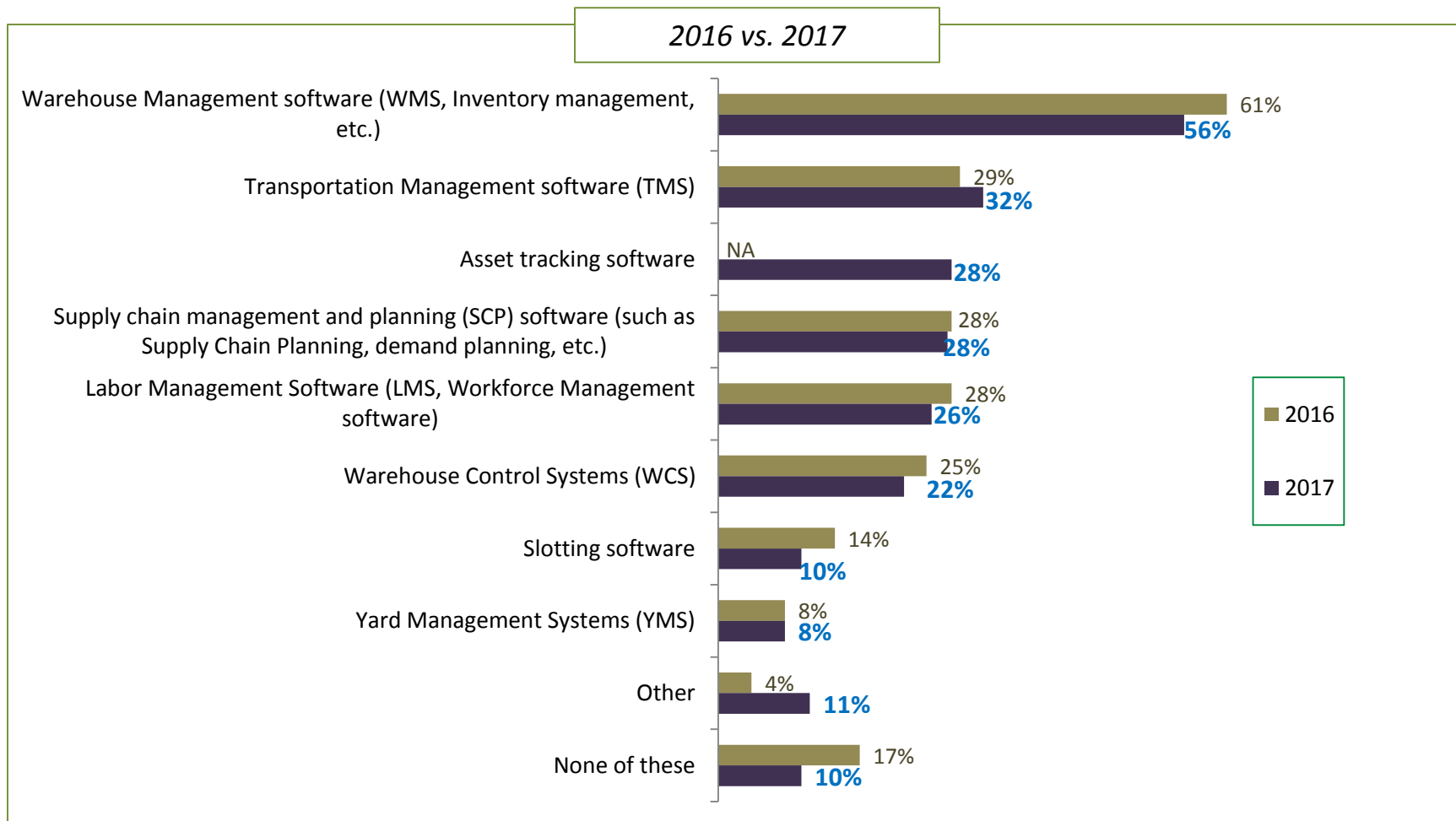
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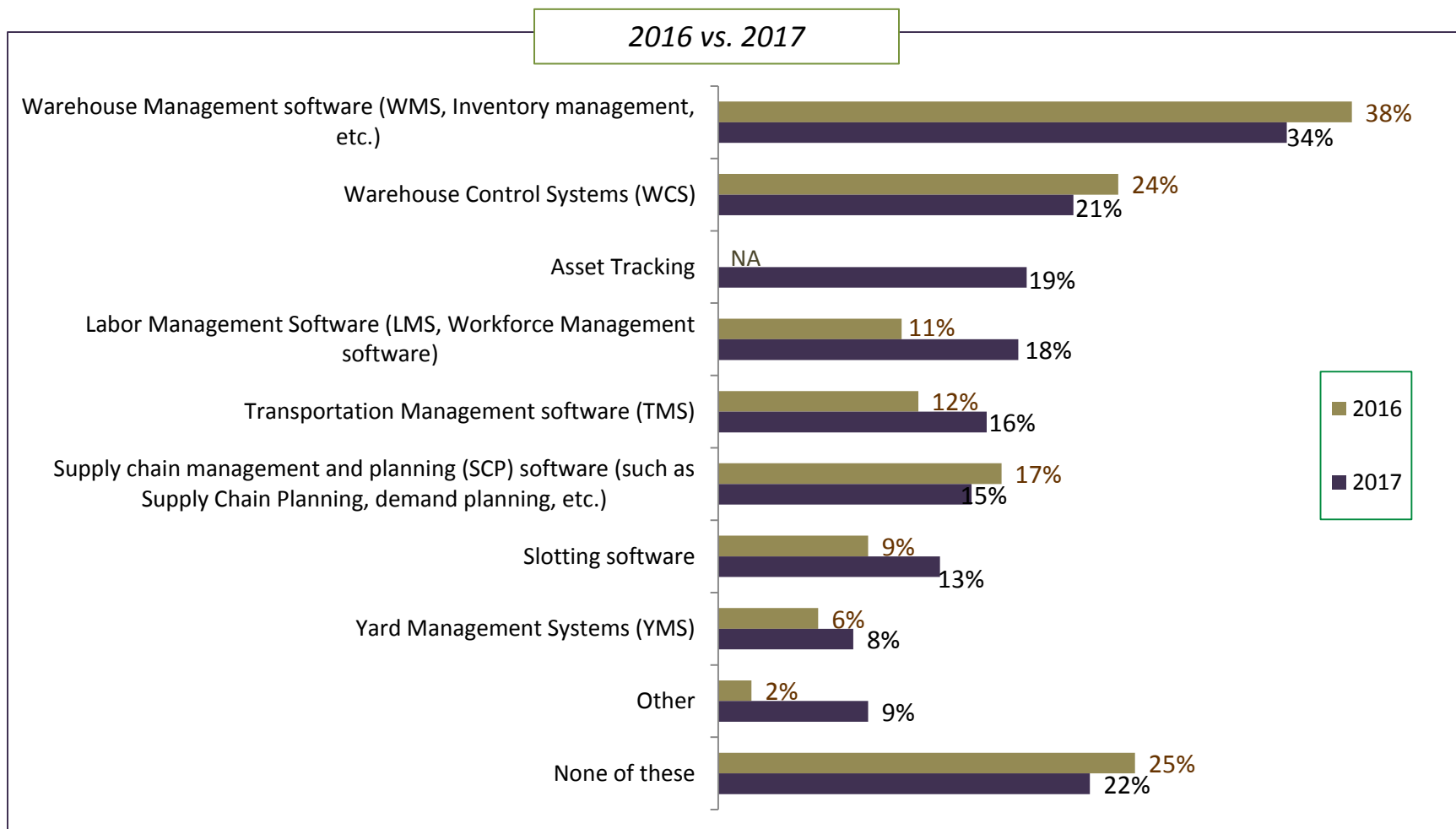
How has your company's use of materials handling software changed over the past 2 years?



## Which of the following software applications are currently in use in your warehousing and distribution environment?



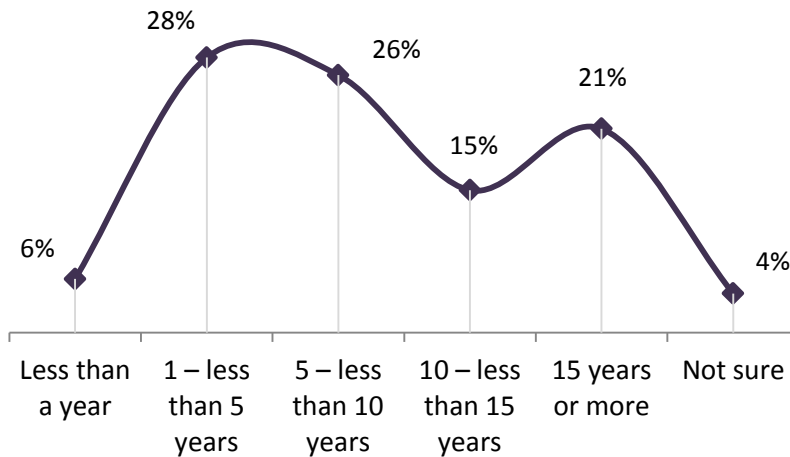
Which are you planning to evaluate, purchase or upgrade within the next 24 months?



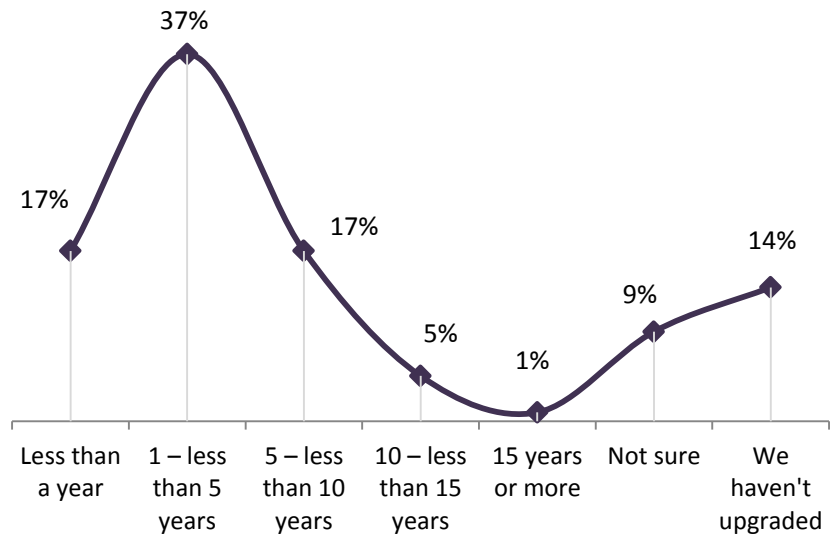


## About organizations' WMS

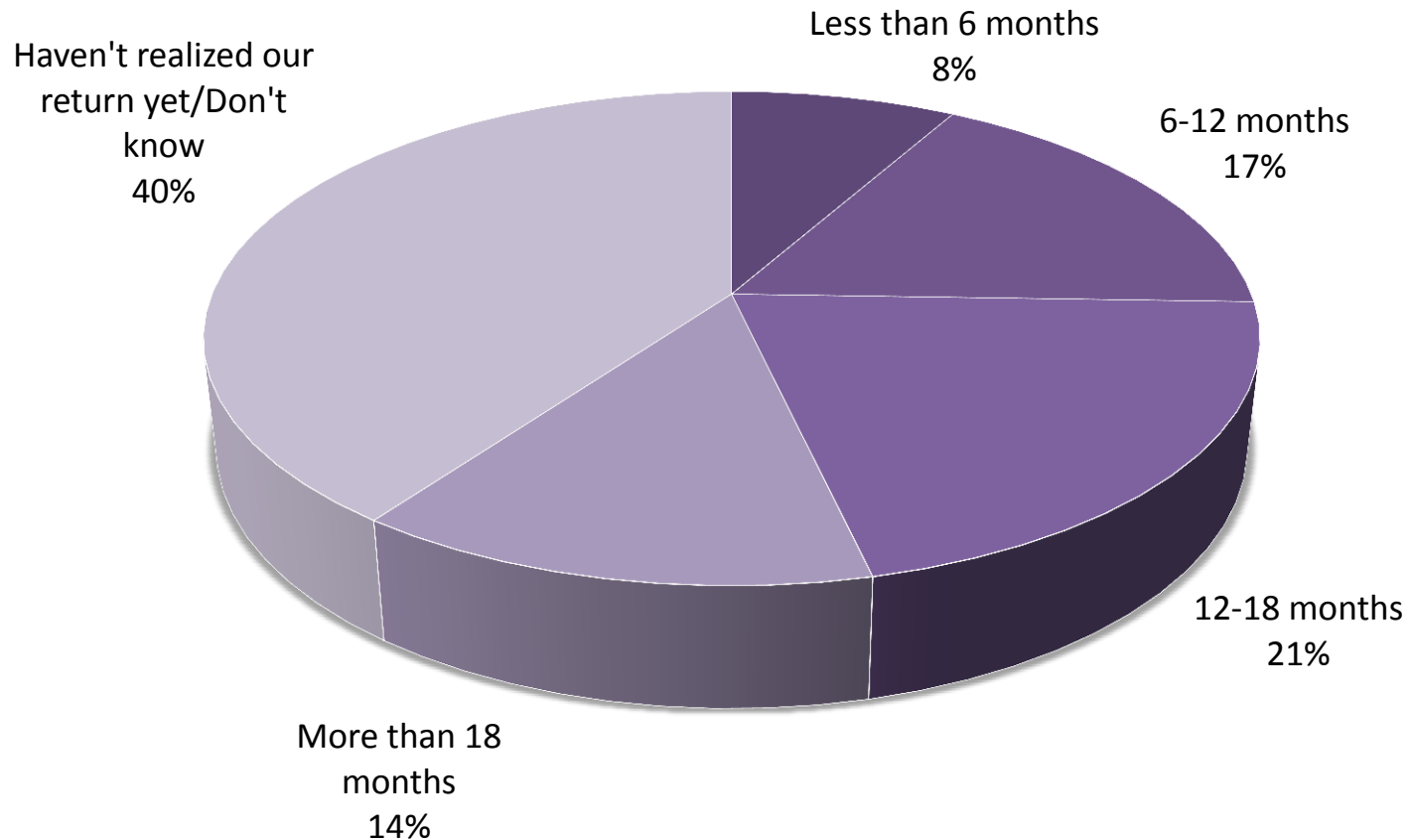
How long have you had your current WMS application in place?



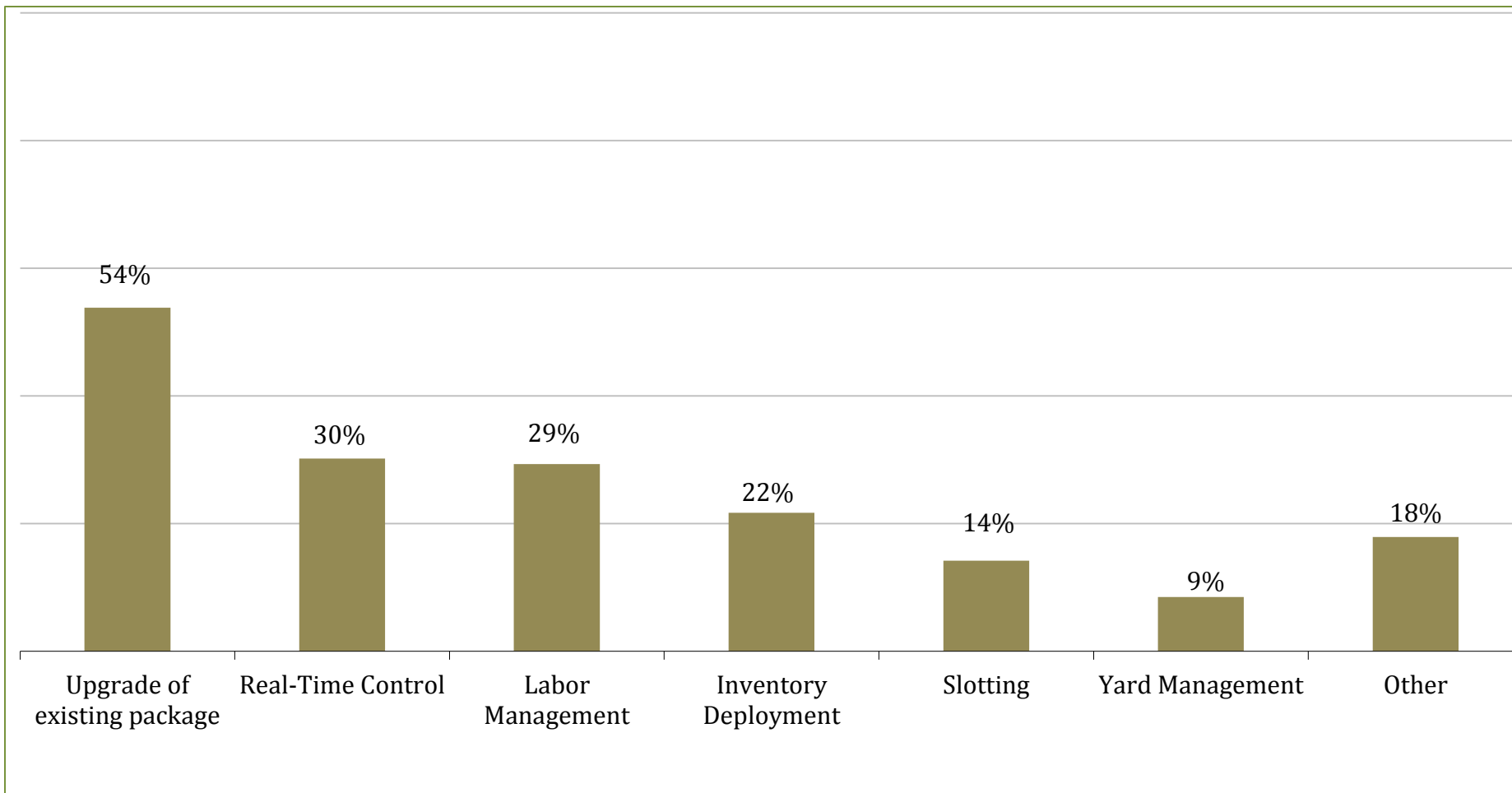
And, when did you last upgrade this application?



How long did it take for you to realize your return on your WMS investment?

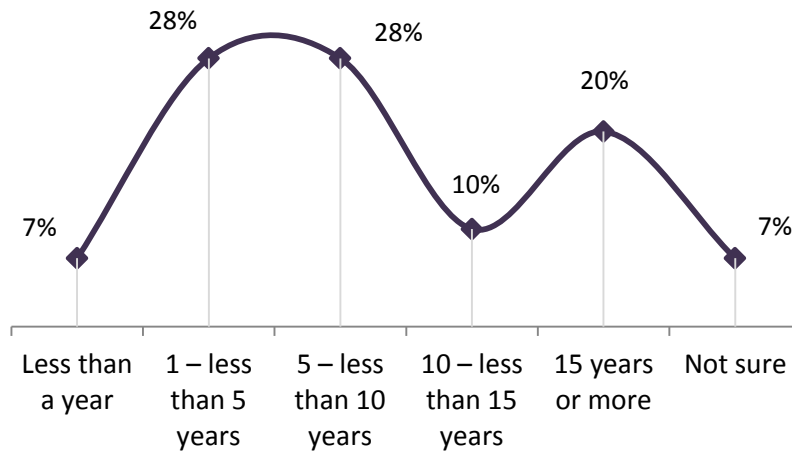


What are the main reasons your company is planning to consider or buy warehousing management software (WMS) during the next 2 years?

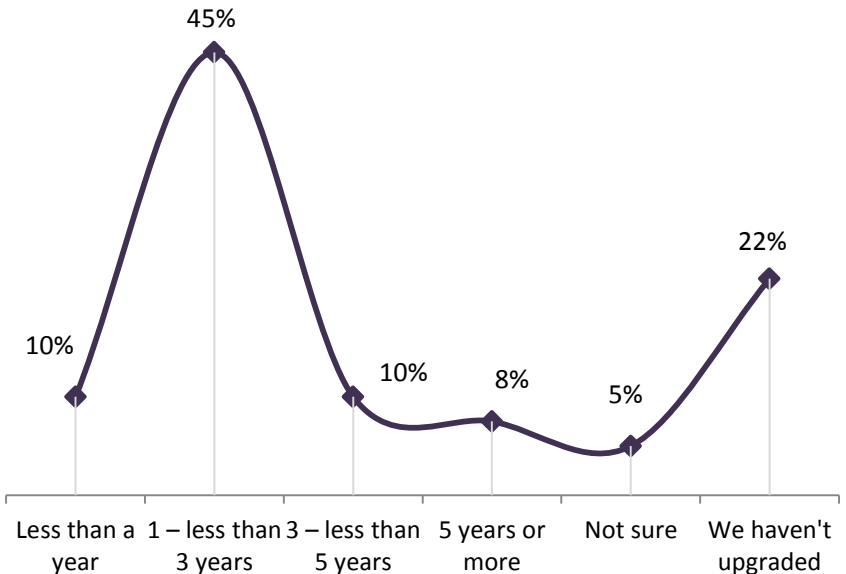


## About organizations' WCS

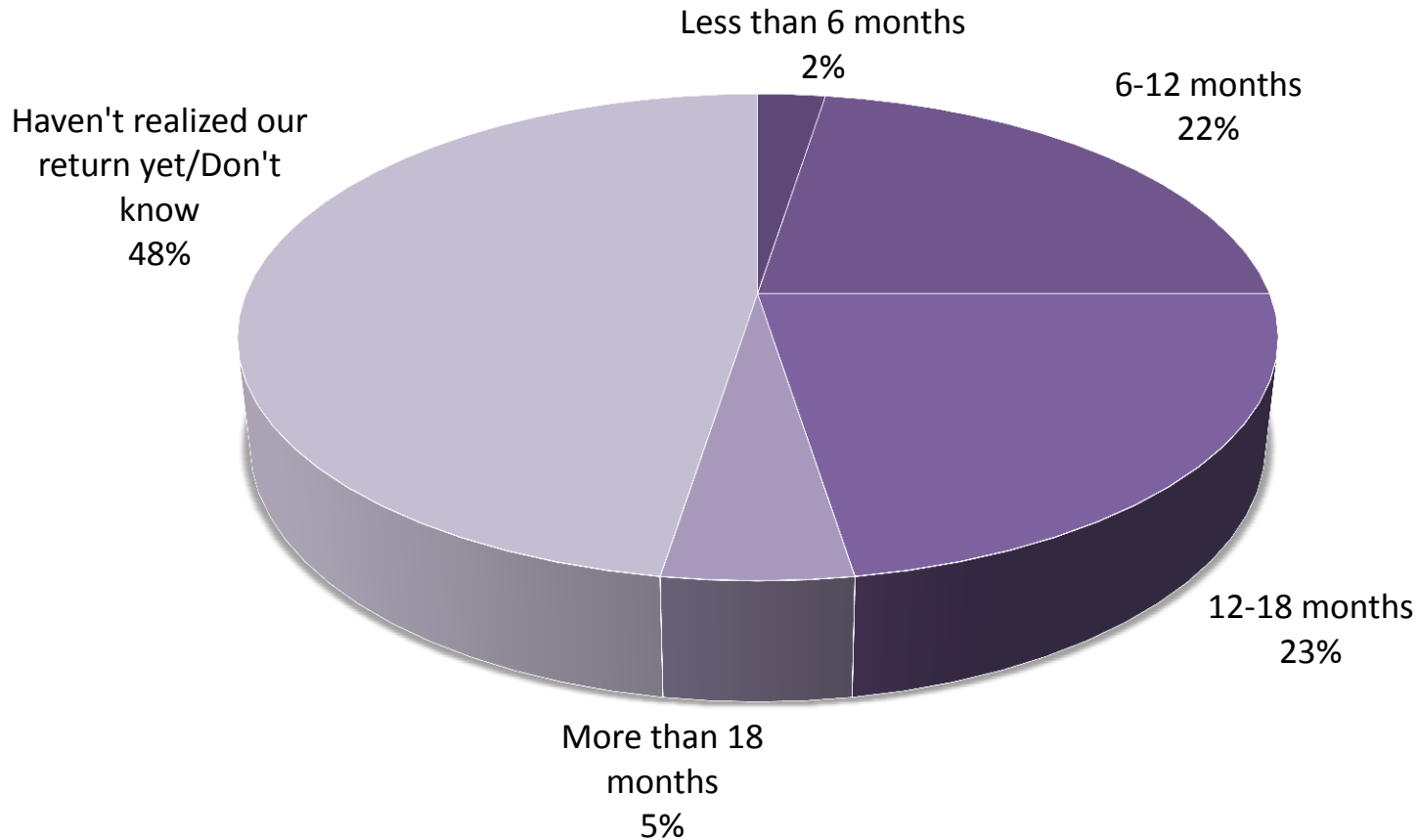
How long have you had your current WCS in place?



And, when did you last upgrade this application?



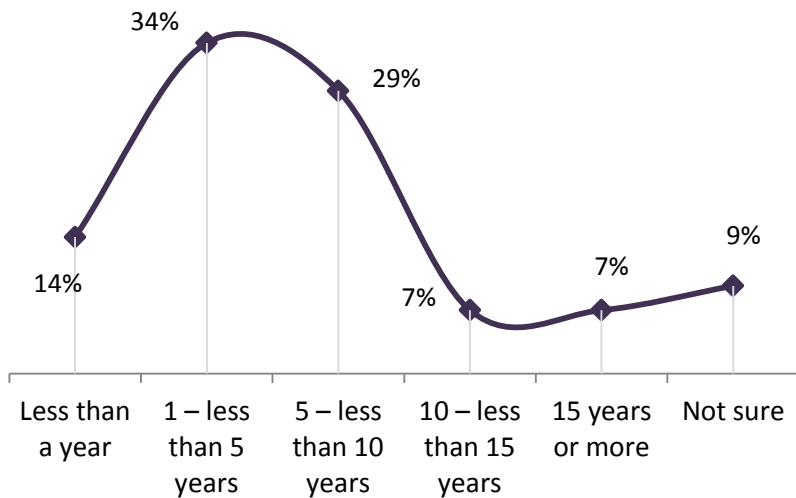
How long did it take for you to realize your return on your WCS?



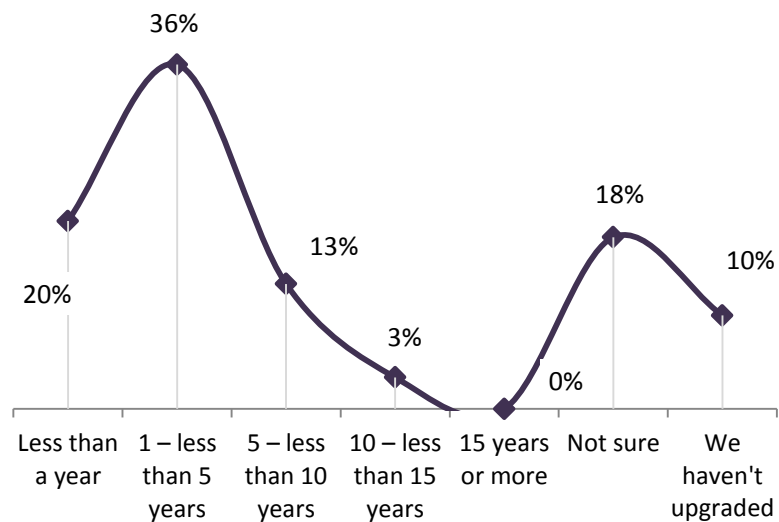


## About organizations' TMS

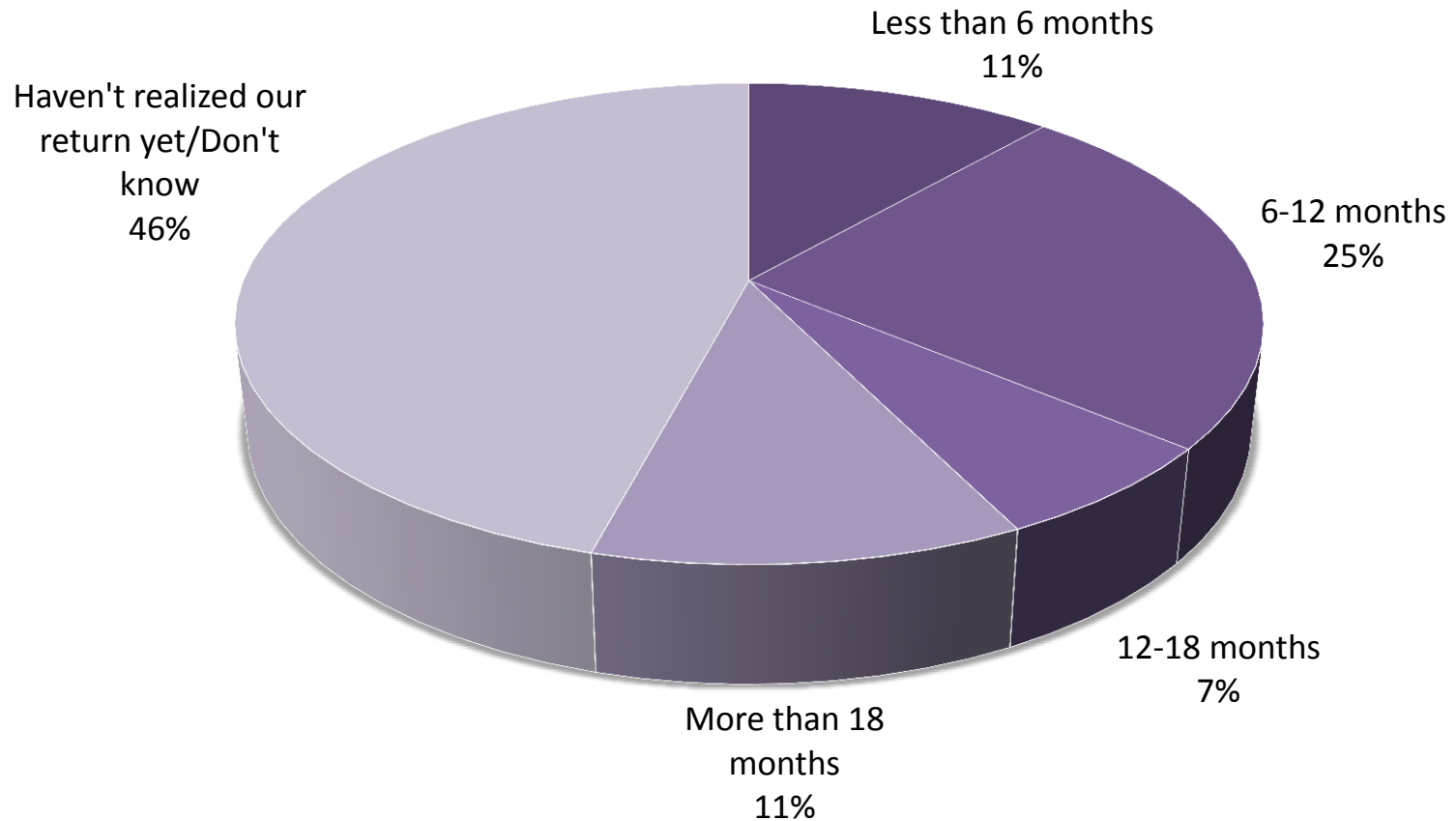
How long have you had your current TMS application in place?



And, when did you last upgrade this application?

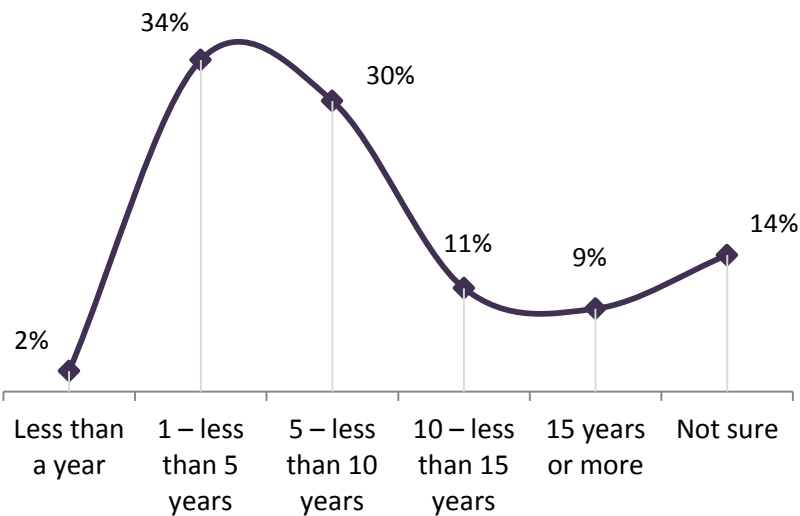


How long did it take for you to realize your return on your TMS investment?

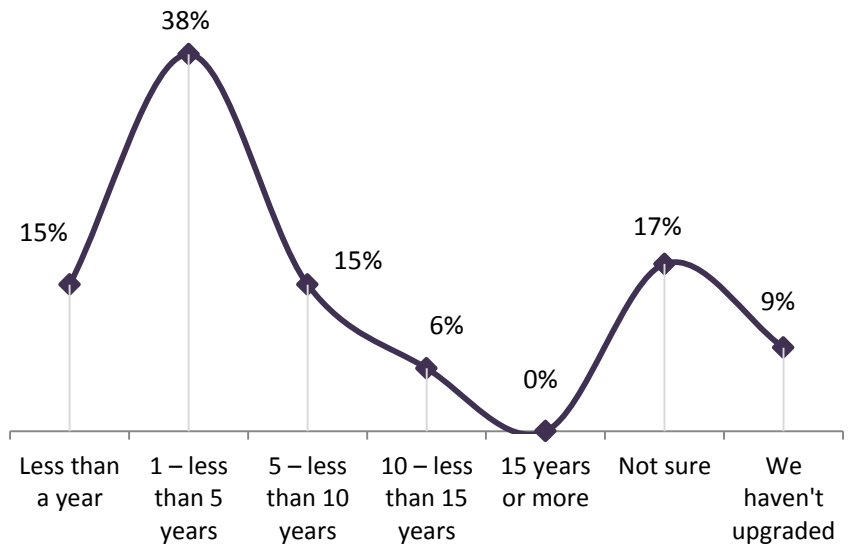


## About organization's Supply Chain Management and Planning (SCP)

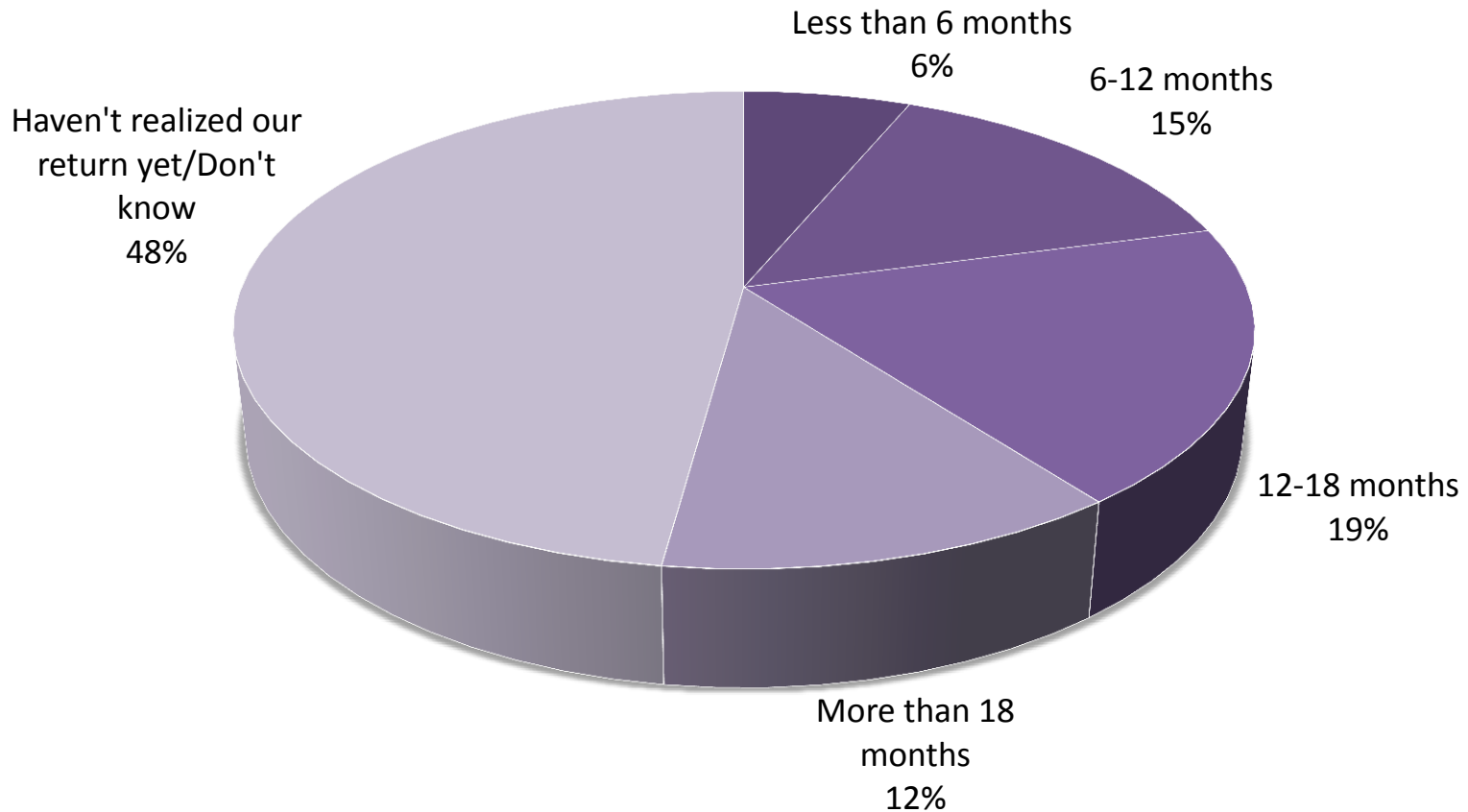
How long have you had your current SCP application in place?



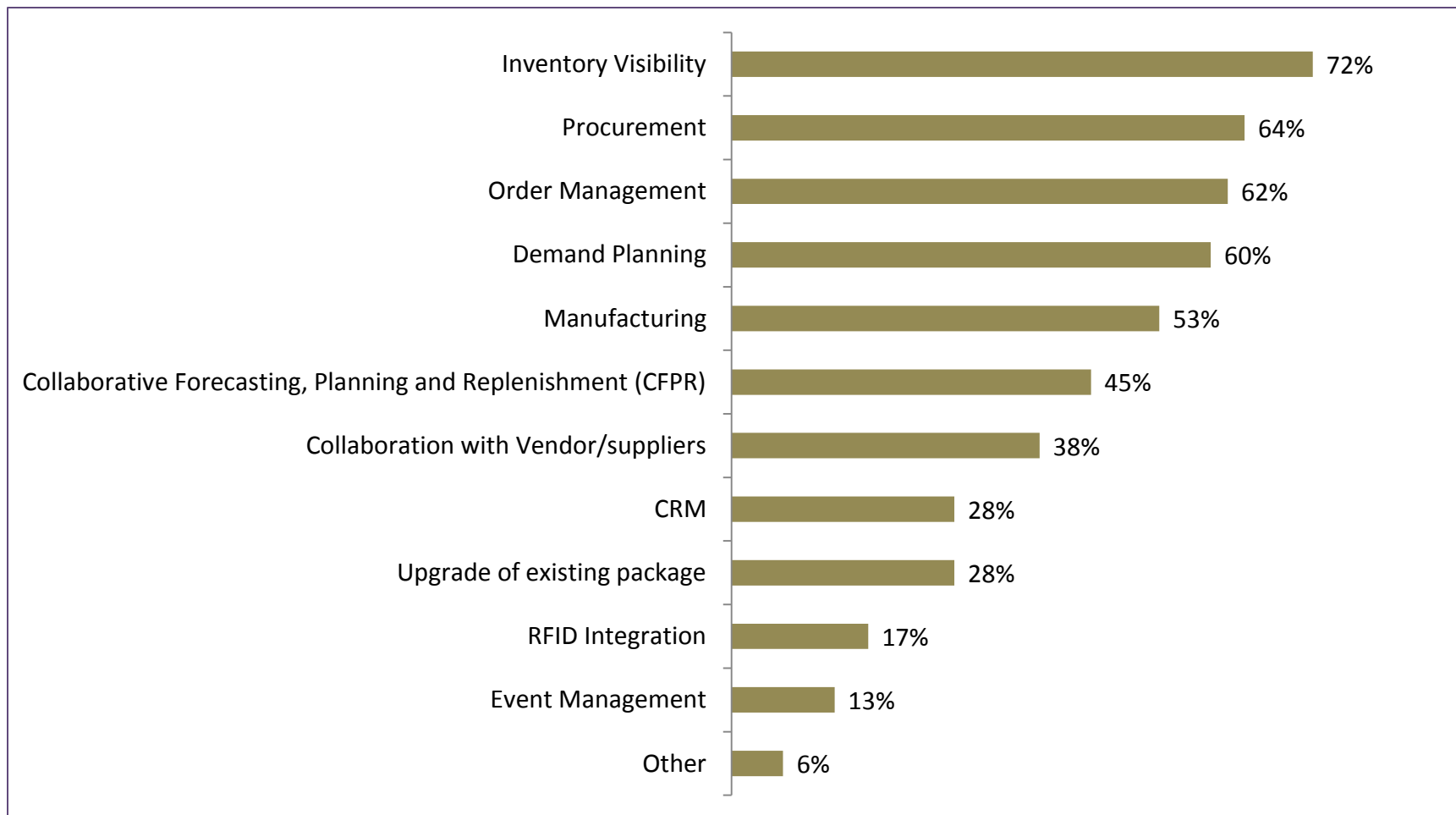
And, when did you last upgrade this application?



How long did it take for you to realize your return on your SCP application?

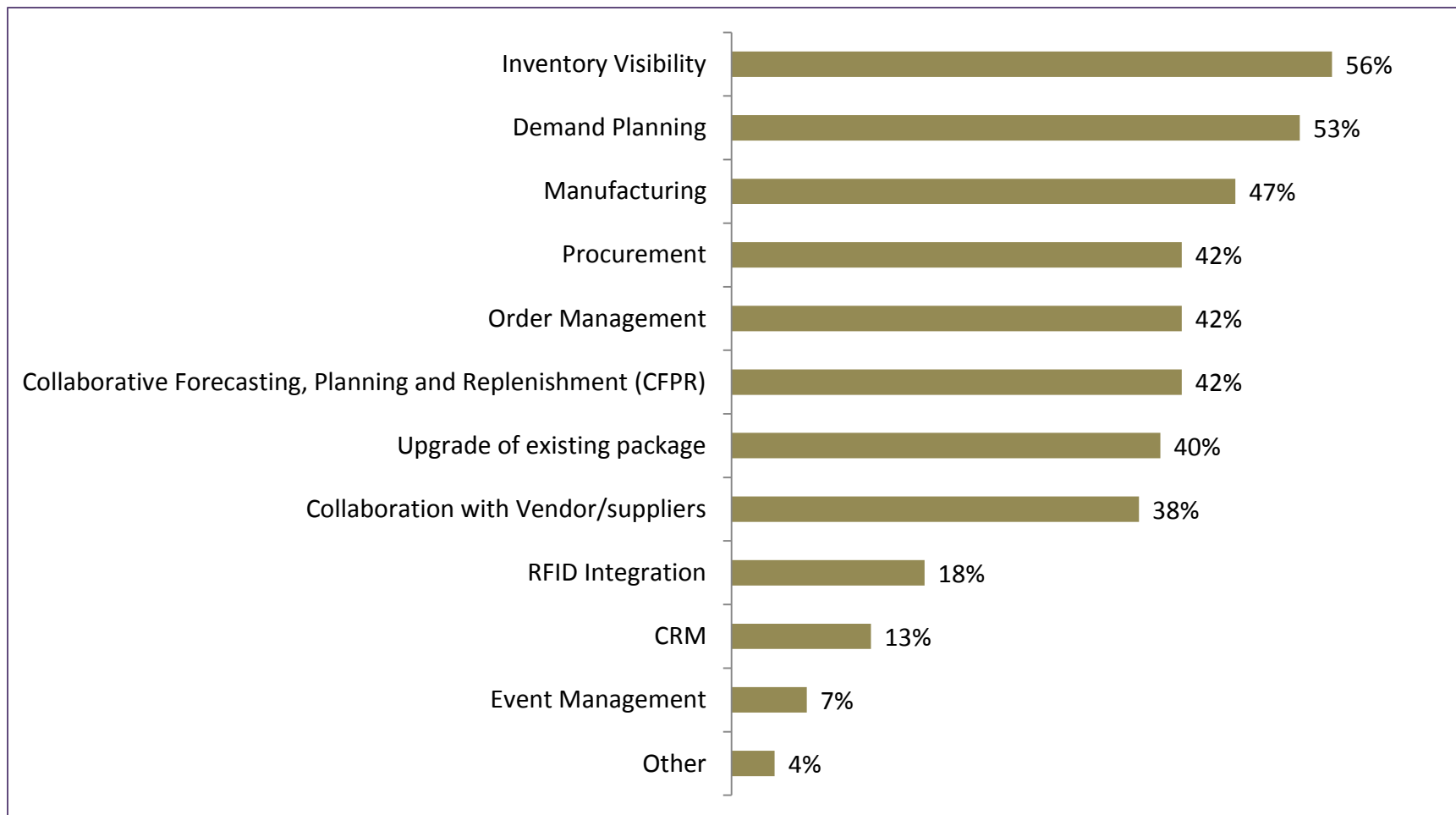


## For which initiatives is your company using your supply chain management software application?



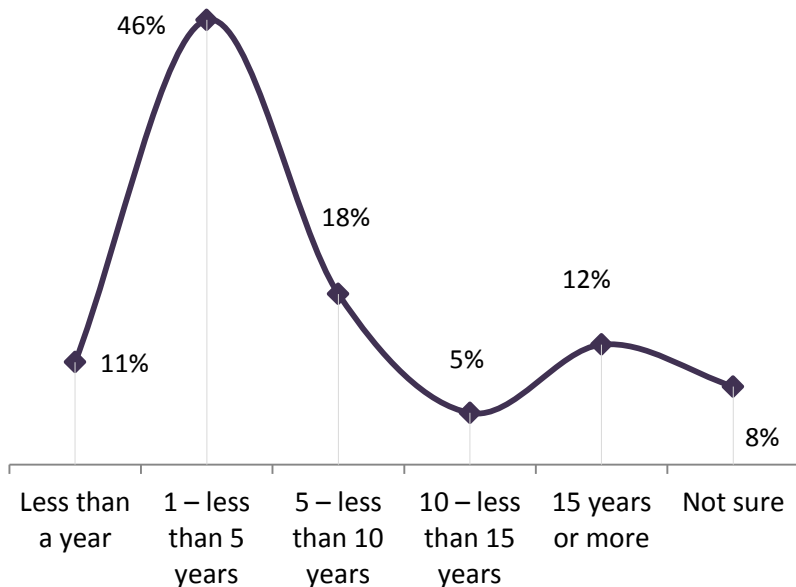


**For which initiatives is your company planning to buy or upgrade your supply chain management software application?**

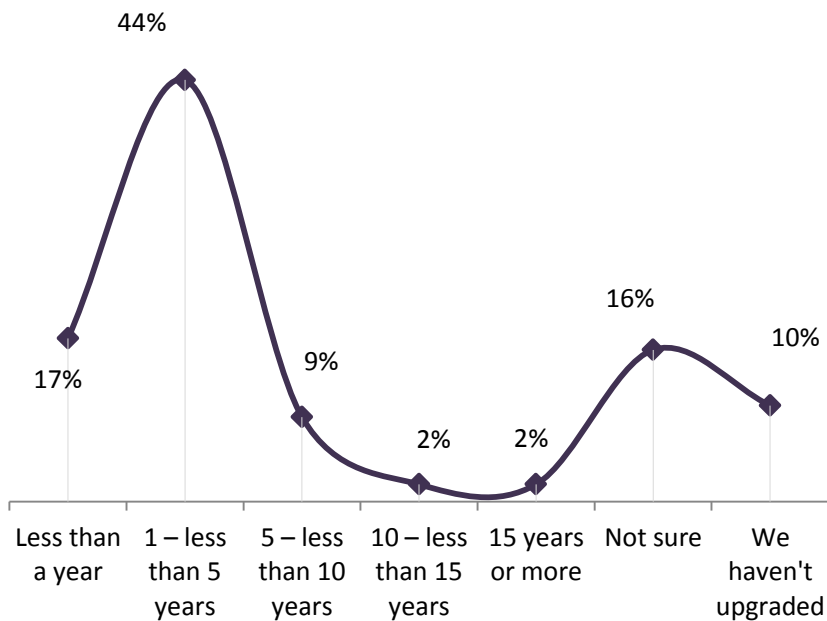


## About organizations' Asset Management Solution

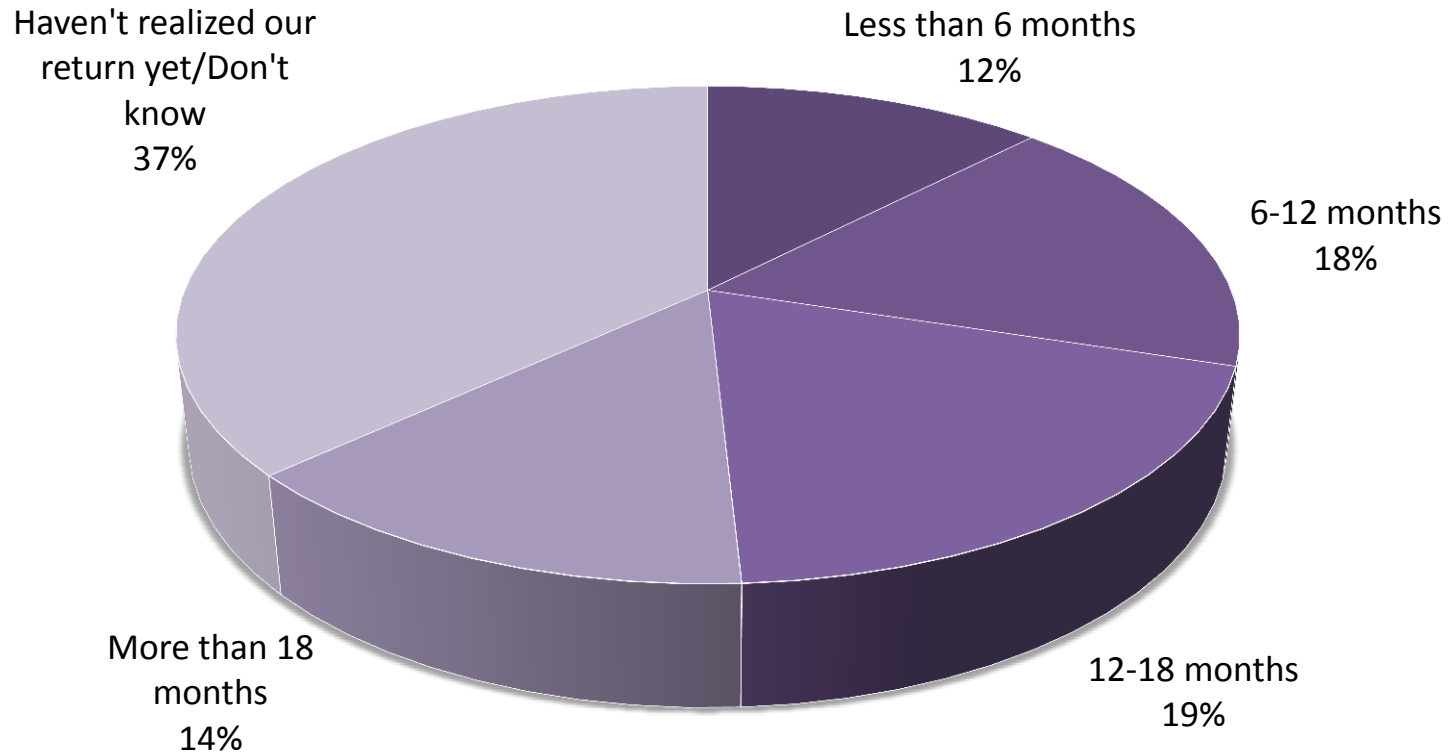
How long have you had your current asset tracking application in place?



And, when did you last upgrade this application?

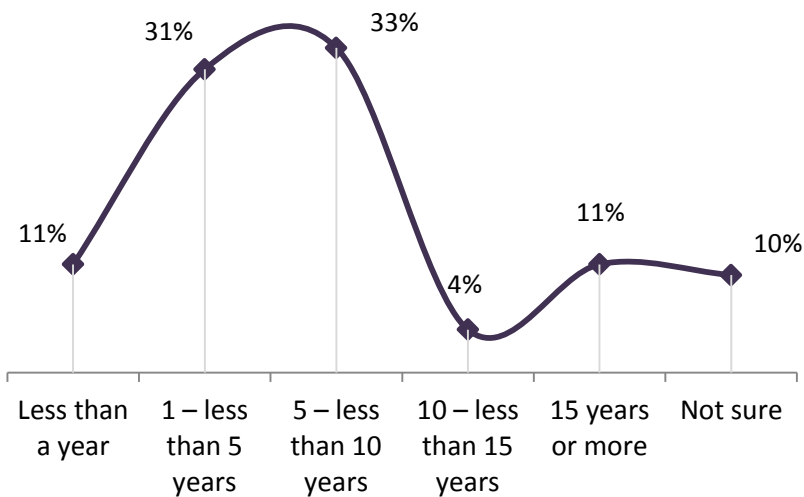


How long did it take for you to realize your return on your asset management investment?

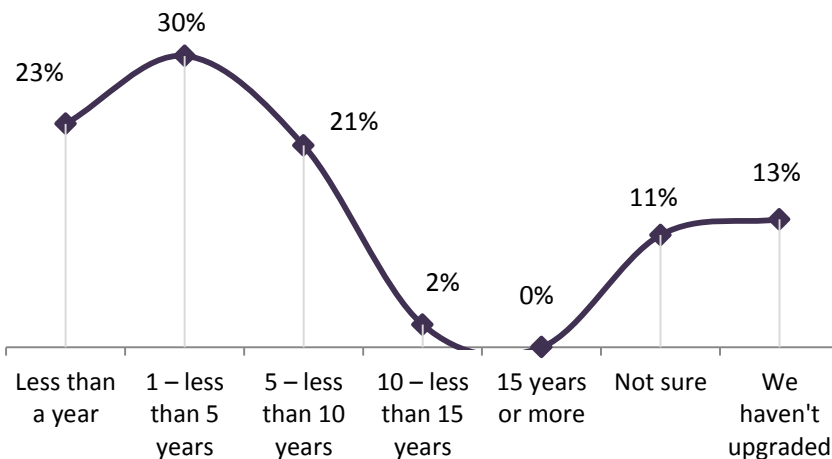


## About organizations' LMS

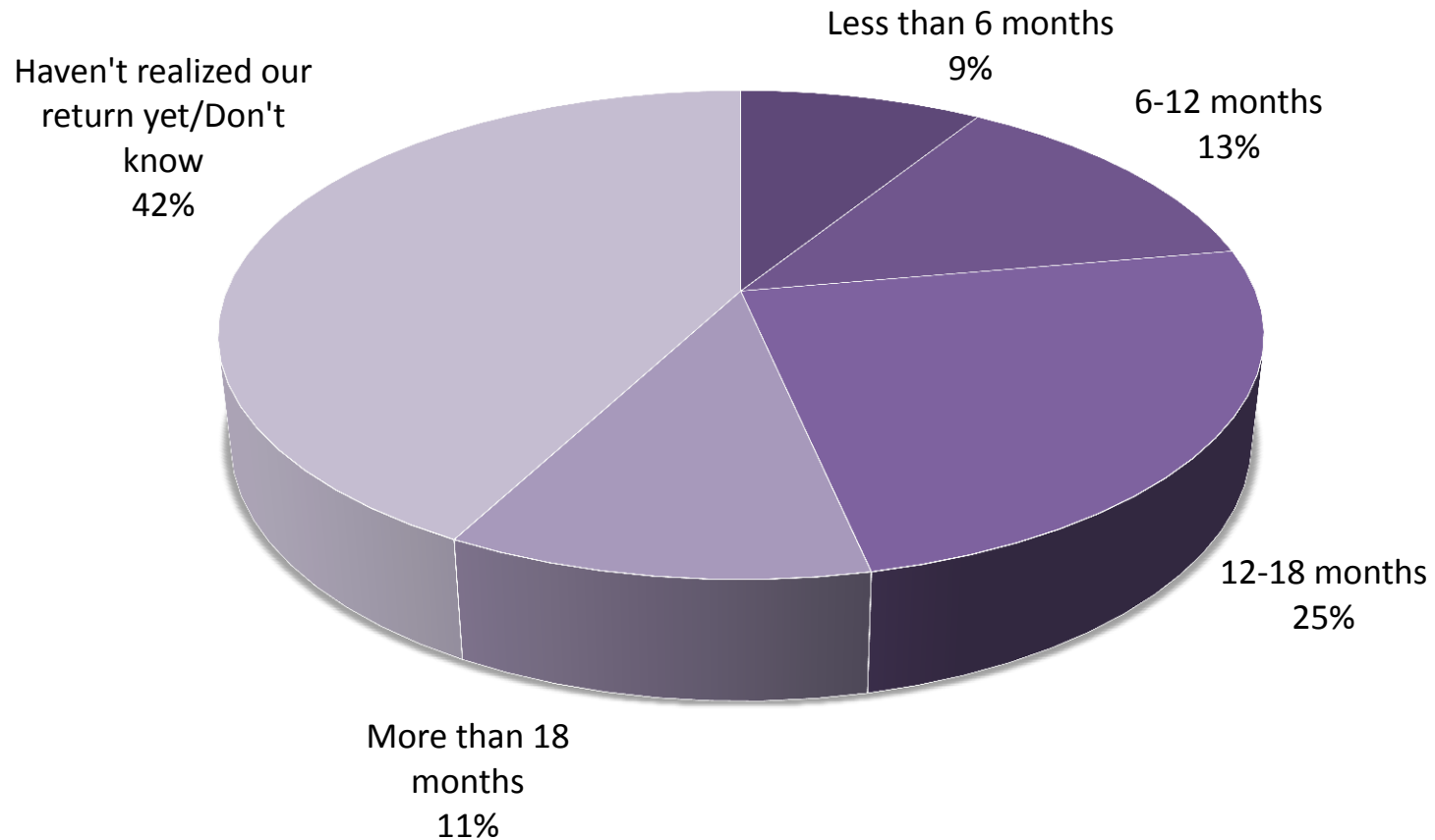
How long have you had your current LMS in place?



And, when did you last upgrade this application?



How long did it take for you to realize your return on your LMS?



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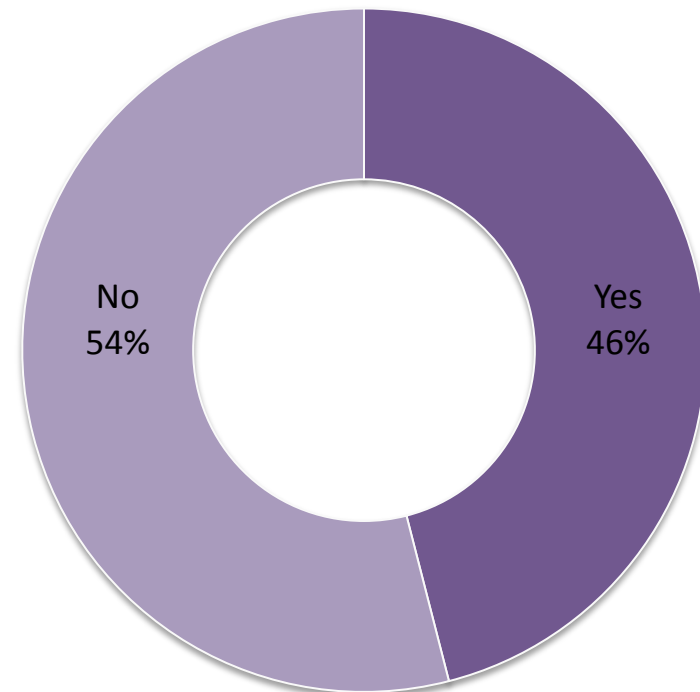
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Are you running or do you plan to evaluate/implement engineered labor standards?

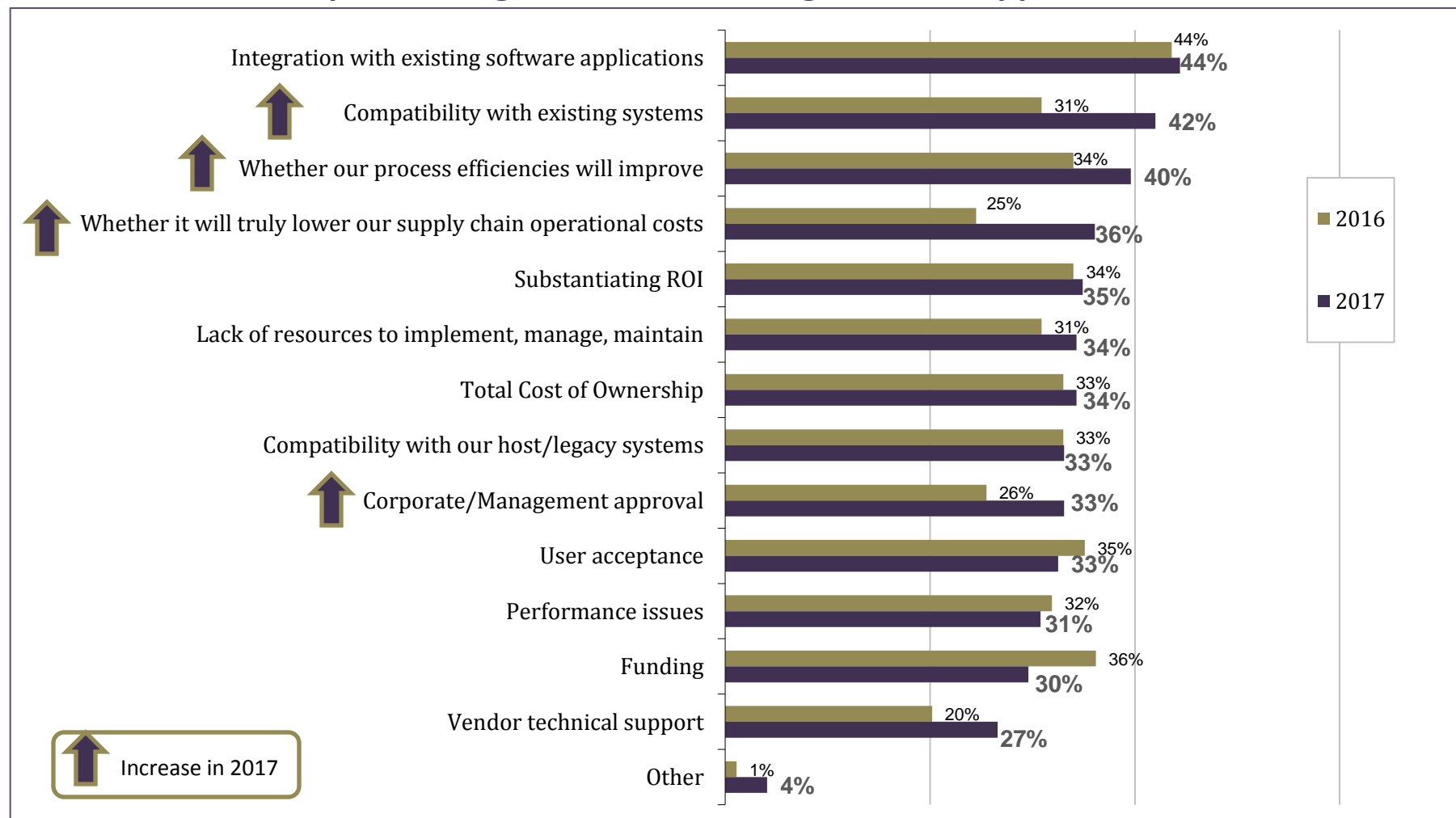


Have you adopted or are you planning to adopt an employee payment program tied to productivity improvements?





## What challenges have you experienced or would you anticipate when adopting or implementing materials handling software applications?



## What risks have you encountered or do you envision when implementing or running supply chain or materials handling software applications?

Application feasibility and compatibility with existing processes/procedures/systems

As a CPG company the concern is always the impact to staying compliant with customer requirements. Impact to service levels.

Attaining advertised performance improvements

Being unable to trust the system.

### **Change management**

Change management

Change over-interruption of work flow.

### **Compatibility with existing system**

Compatibility within the software

Competing with resources with other strategic initiatives

Cost overruns, functionality / software capability mismatch.

Cost. Integrate parts into a whole. System being able to handle total needs.

Current software's compatibility with new system.

### **Data integrity, loss of data**

Data merged from old system is lost or corrupted

Data migration, proper configuration, user acceptance, and user training.

### **Dip in productivity, acceptance to new system and processes**

### **Down time**

Down time

Down time

Downtime & integration

Downtime is setting it up

EE training and application of knowledge once system is running.

End to end the whole process

Execution impacts if install is not flawless

### **Getting everyone on board with the changes.**

Getting everyone on the same page

Globally standardized work / user processes & keeping all the data updated in the system real time

Huge employee learning curve

## What risks have you encountered or do you envision when implementing or running supply chain or materials handling software applications? *(continued)*

If we are running an ERP, we need to be sure that the 3PL's software can integrate successfully.

Implementation

**Implementation issues, integration with existing systems, vendor support**

Implementation over existing

implementation with minimal disruption

We are a 3PL with SLA's that are measured in hours.

Improper implementation

**Integration**

Integration

Integration and adapting

Integration applications that don't get it right all the time, always a critical piece missing

Integration issues

Integration to other systems.

Integration with existing systems

Integration with legacy facilities (interoperability) and reskilling of labor

Keep our same day service levels intact

Lack of acceptance at the site level due to limited resources

Lack of commitment by top management

Lack of compatibility and lack of support for legacy operating systems vs. immense cost to upgrade.

Lack of flexibility in configuration, missing features

Lack of resource knowledge

Lack of ROI

Lack of testing and operations readiness is always biggest risk

largest are resources to implement and end user training/expertise

Learning curve, warehouse standstill while software is introduced into the system

Legacy system integration

Liability implications of data and possible erratic data

Mainly user acceptance

Management approval based on cost.

### What risks have you encountered or do you envision when implementing or running supply chain or materials handling software applications? *(continued)*

Manpower

Matching software applications with current OS.

Not knowing the functional deficiencies of the software until you have already committed to the package

Osha regulations

Over confidence that the software can be implemented in the specified time frame.

Product delivery, integration, speed

Realizing the business case

#### **Reliability**

Reliability

Reporting

Safety and user friendliness

Smooth startup

#### **Software support...and implementing it right the first time out.**

Solution effectiveness (integration of WMS with existing software) My role involves workflow process analysis. With regard to DC's, it includes finding best practices and sending that information upwards. Our IT & Supply Chain departments will make any recommendation decisions to management regarding software specs., compatibility and selection.

Speed of learning

Supply disruption due to insufficient training.

System compatibility and employee buy in.

The rapidly changing environment of technology and the associated challenges of training. By the time we have the products integrated newer technology seems to emerge

Time

Too much too fast

Training, performance, impact to current operations

Unwilling to pay a fortune

Update more and more frequency

**What risks have you encountered or do you envision when implementing or running supply chain or materials handling software applications? *(continued)***

**User acceptance, infrastructure, return on investment**

User resistance.

User transition / comfort level / learning new or changed functions; Hardware compatibility (printers)

We are a 3PL. Any changes from our customer's feeds.

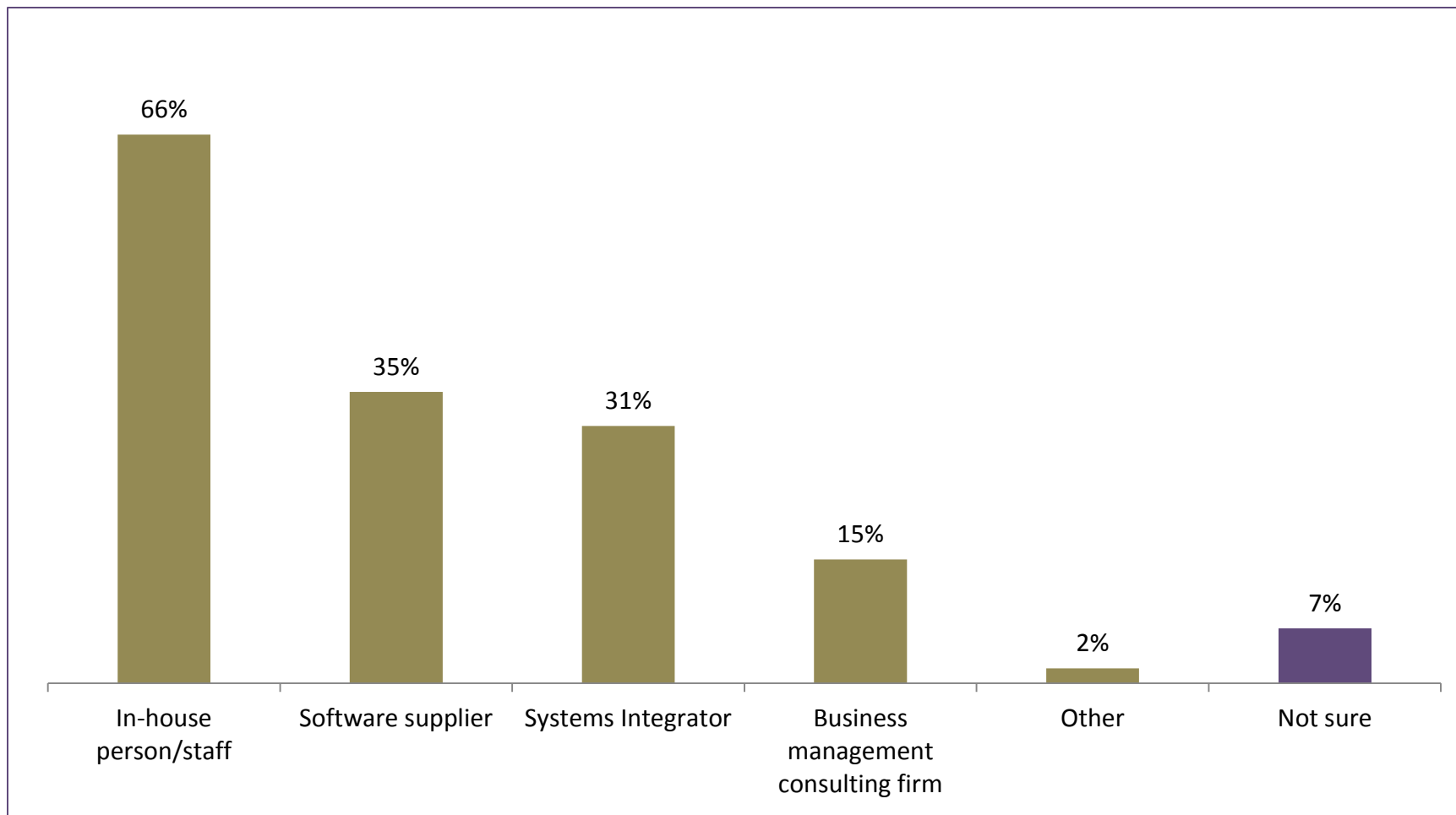
We are a salvage company, we have some unique opportunities.

We have encountered unforeseen problems.

When we try to put something different or work on something different it blows and doesn't work out

Whether it will truly lower our supply chain operational costs, ROI

When your company purchases software, who do you typically use to integrate the software installation?



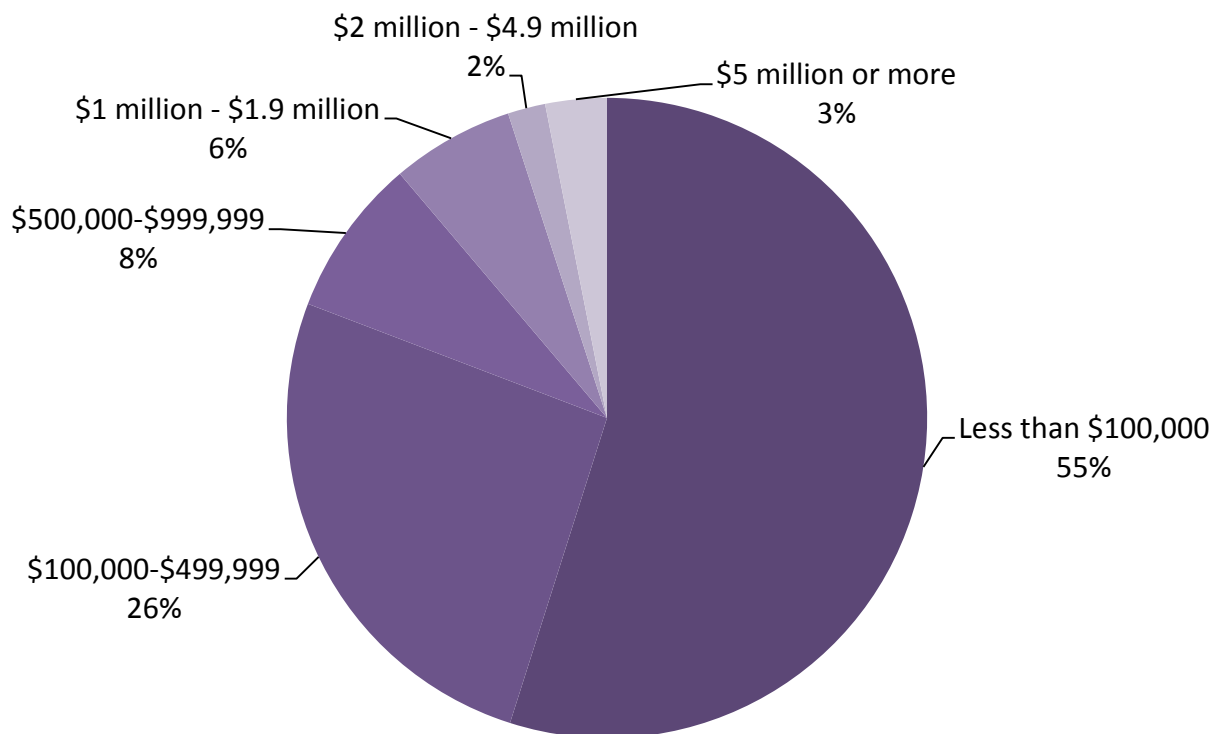


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Approximately, how much will your company spend on supply chain software for your operation including license, integration and training in the next 12 months?



	2013	2014	2015	2016	2017
Average \$\$ plan to spend	\$572,000	\$663,326	\$679,220	<b>\$472,900</b>	\$504,630
Median \$\$ plan to spend	\$92,170	\$113,333	\$144,444	<b>\$88,680</b>	\$91,010

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**If you had the opportunity to implement one software solution or application that would improve any aspect of your materials handling operation, what would it be?**

A true Materials Handling Software is needed  
Advanced shipment notification from vendors.  
Anticipate end of life and project acquisition needs using volatile production forecasting data  
ASRS  
Asset Tracking  
Automating material receiving with scanners  
**Bar code**  
BAR CODE  
Bar code inventory system for accuracy.  
Bar code scanning  
Bar Code Scanning Warehouse Management  
Bar coding  
Bar coding  
Barcoding  
Barcoding  
Barcoding inventory and locations and/or RFID for assets and tools  
Be careful when you go to the cloud  
Better inventory control  
Better integration and communication  
Better integration with TMS  
Better warehouse management  
Bill of Materials  
Component inventory control and tracking  
Control of physical assets would be front runner.  
Cubing  
Delivery analysis  
Easy integration with existing programs  
Envista  
Equipment tracking

## **ERP**

ERP

ERP with WMS

Faster Cycle Counts

Finished Goods

## **Fleet management**

Fleet management

Full integration of ERP to TMS.

Heat mapping

Improved metrics systems, real time reporting

## **Integrate a WMS with our current EMS**

Integrate systems

Interacting between different control points.

Inventory

Inventory accuracy.

INVENTORY CONTROL

## **Inventory control and slotting**

Inventory movement and replenishment.

Kiva system

Labeling

## **Labor Management**

Labor management software

Labor management system

Labor Management tools and software

Labor management

Lease

Less down time

Lift truck mounted computers

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If you had the opportunity to implement one software solution or application that would improve any aspect of your materials handling operation, what would it be? *(continued)*

## LMS

LMS

Lower cost

Lower operating costs

Material usage

Materials tracking

Mobility

More accurate GPS info

More open software

New MRP

## Order fulfillment (picking)

Order reliability

Palletizers or automated movement equipment

Part location / carousel

pick tickets

Pick to light

Pick, Pack and ship operations have greatest opportunities

## Picking automation

PkMS

Point of use for incoming products and outgoing products

Possibly a new ERP system, but the cost is huge

Process controls

Product tracking into loads

Quicker movement of inventory

Raw material replenishment

Receiving and wire tracking

Receiving through inspection

Reduce error

Reliable scanners

Reporting

## RFID

RFID

RFID

RFID asset tracking

## SAP

SAP

SAP

SAP

Scanning

Schedule optimization

Scheduling and planning

Shipment Management

Shockwatch across all plants

Slotting software or warehouse control systems

Software that provides pick path for distribution

Solumina

Something that merges with our truck dispatch program excel based

Standardize

TMS

## TMS

To find some kind of thing for a robot for my business

Tracking

Tracking and materials conditions

Transport Management System

Transportation

Unified ERP

Upgrade our WMS

Upgrade WMS and implement YMS

Velocity

**If you had the opportunity to implement one software solution or application that would improve any aspect of your materials handling operation, what would it be? *(continued)***

Warehouse control
Warehouse Execution Software
Warehouse inventory
Warehouse Robotics
Waveless pick generation for consumer orders.
WCS, Slotting Software
WES
Wireless technology
WMS
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WMS
WMS software for our clients
Workload management
Would implement a label applicator on our production lines that would communicate with SAP using Bartender software.
Zoning

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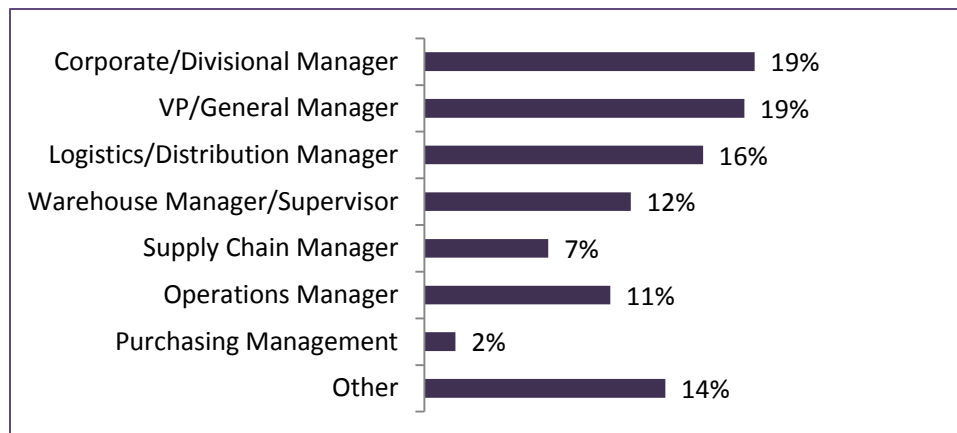
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## Respondent Demographics

### Industry

<b>Manufacturing</b>	<b>% of respondents</b>
Food, Beverage & Tobacco	10%
Automotive & Transportation Equipment	6%
Computers & Electronics	5%
Electrical Equipment	5%
Chemicals/Pharmaceuticals	4%
Industrial Machinery	4%
Paper/Printing	4%
Textiles/Apparel	4%
Aerospace	3%
Fabricated Metals	3%
Primary Metals	2%
Furniture	2%
Plastics & Rubber	1%
Other Manufacturing (specify)	14%
<b>Non-manufacturing</b>	
Wholesale Trade	11%
Retail Trade	4%
3rd Party Logistics Provider	5%
Transportation/Warehousing Services	7%
Carrier - Air, Ocean or Ground	1%
Other Non-Manufacturing (specify)	6%

### Job function



### Company size

