

## 1. Introduction

LoadProof (<https://loadproof.com/features>) is a Centralized Enterprise Photo Documentation System for Supply Chain. LoadProof is built on the premise that photos and videos are vital documentation that serve as powerful proof of important operations that are performed in the supply chain within and across organizations when fulfilling customer orders as well while meeting the contractual obligations that the organizations have committed to operate by as they transfer merchandise across different parties that partake in the Supply Chain functions and operations. And these photo and video data should not be stored in someone's smartphone or inbox or in their computer, instead should be stored in a centralized Enterprise system, where the data can be pushed into superfast, stored securely, accessible to all the stake holders in an organization as well as facilitates superfast retrieval and sharing. LoadProof is an Enterprise System of record for photo and video documentation and is as important as an ERP (Enterprise Resource Planning System) which is an enterprise system of record for critical documents such as Purchase Orders, Sales Orders, Contracts between parties etc. that have tremendous legal ramifications, also as important as a WMS (Warehouse Management System) that hold indispensable information such as shipment and fulfillment data of orders. Like how Instagram, Facebook, Snapchat etc. have evolved into social media platforms/systems that enable an individual to showcase how pretty they look or how pretty their clothes are or how pretty the cosmetic that they wear, LoadProof is another Enterprise system that holds similar photos, but for a different reason, not so much for show off, but to serve as proof even in the court of law in the event there is a dispute between organizations while they perform many facets of the functions and operations within a Supply Chain.



Daikin Applied implemented LoadProof in their seven facilities. This document describes the benefits that were accrued and the associated dollar savings. Daikin Applied Americas (formerly McQuay International) is a global corporation that designs, manufactures and sells heating, ventilation and air conditioning (HVAC) products, systems, parts and services for commercial buildings. Since 2006, McQuay has been a subsidiary of Daikin Industries, Ltd. McQuay world headquarters are located in Minneapolis, Minnesota, United States. Products are sold by a global network of sales representatives and distributors.

Since its founding in Osaka in 1924, Daikin has expanded business focused primarily on air conditioning to over 150 countries. Aiming to help solve social and community problems and grow business, Daikin strives to meet expectations and maintain trust worldwide as a global company that supports human health and comfort while creating new value for air and the environment.

## 2. Daikin Supply Chain - Macro Picture

Daikin has 7 facilities in the USA, from where HVAC systems are shipped to customers all over North America. The 7 sites are

1. Dayton
2. Fairbault – North
3. Fairbault – South
4. Owatonna
5. Phoenix
6. San Luis Potosi and
7. Staunton

Daikin manufactures large HVAC systems and ships those large HVAC systems in flatbed trucks daily. Each flatbed truck would fit 2 to 3 HVAC system. There are 3 locations in Minneapolis, overall, there are 9 locations North America. Every day each location is shipping approximately 20 to 30 HVAC systems. In a week they are shipping about 150 HVAC systems, there is no easy way to retrieve Photos of the condition of the HVAC systems, if a customer comes back asking for a specific Photo to examine the condition of the HVAC system, when it left the Daikin facility in order to ensure the product was shipped without any damages.

## 3. Daikin Supply Chain - Micro Picture

The objectives to accomplish as part of this project are listed below,

1. Needs a better tool to document outbound loads. Need the ability document the condition of the HVAC systems that are leaving the Daikin facilities through Photos, so we can assure our customers that we did a great job, shipping HVAC systems in excellent condition. We need the ability to show unequivocally, that the HVAC systems left our facilities in perfect condition.
2. The problem is that they are currently taking photos and downloading those photos into a standard file folder structure in a local personal computer, but it consumes a lot of time to retrieve the Photos.



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3. The photos are organized very poorly, they need better organization, it is very hard to pull photos, spending a lot of time looking for that specific Photo that was taken on a specific date
4. Once we solve this problem, eventually also want to integrate these Photos into the Oracle Transportation System they are using today. So just by click of a mouse within the Oracle Transportation System, he would like to pull the Photos from LoadProof.
5. Also, would like to provide easy and quick access to Sales People so they can share the Photos of the HVAC systems with their customers.
6. Also need to add documents such as BOL, Packing Slip, Load Verification sheet for each load.

## 4. What is the Problem?

Daikin being an industrial products manufacturer had all the challenges a typical industrial products manufacturer would have in their Supply Chain. Daikin manufactures, assembles and ships all HVAC systems on time and to the customer's site in perfect condition so the deployment of these HVAC systems can be done smoothly as part of construction or starting up new facilities that is already going on. If you really think about it, these are products that are purchased out of somebody's capital projects and budgets. So, somebody is investing big time constructing large buildings that need these HVAC systems. So, it is very important for Daikin Warehouse Manager to do his part of the job thoroughly and deliver them on time.

Usually when a customer buys Daikin's HVAC system, it is for another large building that is being constructed. There are several other projects that are going on in parallel to get the construction of the building completed as per the plan. So, it is very important for Daikin to absolutely get the HVAC system at the construction site on time otherwise the construction of the building could be delayed. This not only increases the timeline, but also increases the cost of the overall construction because all the other vendors that have dependency on the completion of the HVAC installation part of the project needs to wait, which directly contributes to the increase in the overall cost of the construction project. Sometimes there are also penalty clauses if the product does not arrive on time at the right place.

Daikin personnel did everything right to make sure the HVAC systems are packed perfectly, with all the stretch wrapping, dunnage and any other tight packing required. However, the large HVAC systems would arrive at the construction site with scratches, damages, sometimes even missing parts. So Daikin warehouse personnel started taking Photos in order to prove that they did their job right as Photos are worth thousand words, so later in the case of damage or anything else that happened to the shipment, Daikin can go back to the customer and or carrier and show them the Photos they took, so they can prove that they did their job right and anything happened after the product left their facility it was not their fault.



There were a couple of options to take Photos,

1. Use the old school digital camera
2. Use warehouse personnel smart phones,

There were personnel taking Photos but there was no central system to store the photos that were taken. The lack of a central system, lack of an easier way to retrieve the Photos and the lack of an easier way to share the Photos, all made it very difficult for Daikin to prove that they did their job right. The only option for Daikin

### Troy Hansen, Materials Manager Daikin

*I am super happy with the ease of use and how little effort it takes after we are done taking Photos, to get the information to the customer, implementation was easy and simple, I love it. We are saving 20 to 30 hours/week/facility just in having a better system to organize our Photos alone & there are many other savings*

Click here to watch Troy's video testimonial  
<https://smartgladiator.wis>



**LoadProof**  
Enterprise Photo Documentation System  
By Smart Gladiator

was to eat the cost, meaning if any damage or any part was missed, Daikin would just blindly replace it for free, absorbing the cost.

By doing this, not only Daikin was losing money, but also Daikin was losing its reputation. Hence there was this absolute need to find a solution ASAP.

## 5. What is the Solution?

The Daikin Materials Manager Troy Hansen had heard about LoadProof through a new warehouse manager that he had hired. This warehouse manager had used LoadProof in his previous job. So, Troy reached out to LoadProof by submitting a contact form. The LoadProof team performed a demo and the Daikin was convinced that LoadProof is a good solution that not only solved all the current problems the Daikin team was facing, but also provided additional capabilities that made everything related to capturing, retrieving and sharing of the Photos so easy.

With that, Daikin turned on LoadProof for the first facility, which was Fairbault – North. Daikin personnel at the Fairbault – North facility started taking Photos of the HVAC systems that left the facility on a daily basis. The personnel would also take Photos of the Packing Slip and the Shipping Checklist. The packing slip clearly documented the contents of the shipment and the Shipping Checklist clearly documented all the preparation and the checks that were done at the time of loading the HVAC system.

These Photos were uploaded to the LoadProof cloud and are available for Daikin personnel whenever they need them. In the event they need them, all they do is log on to LoadProof and type in the Bill of Lading Number to retrieve the specific Photos, so they can demonstrate the condition of the HVAC system that left their facility.

## 6. What are the capabilities that Daikin obtained with Loadproof?

LoadProof is a Centralized Enterprise Class Photo Documentation System for the entire Daikin Supply Chain Network.

### 6.1 Super-Fast Photo Capture

After downloading the LoadProof app from the app store, Daikin users are able to take Photos using their mobile devices in a few seconds and then upload those Photos to the cloud tagging the Photos with appropriate contextual data elements. While uploading Photos Daikin personnel are able to add notes, are also able to tag the Photos with the following

1. User that captured the photos
2. Date when the photos are captured
3. Time when the photos are captured
4. GPS coordinates of the location where the photos are captured
5. Device that was used to capture the photos
6. Android OS version that was running in the device that was used to capture photos

The Photos are captured in multiple resolutions based on the plan, the different resolutions that are available are Low Resolution, Medium Resolution and High Resolution. Daikin uses high resolution Photos for to capture Photos of documents such as Packing Slip, Bill of Lading and Load Verification sheet.

### 6.2 Super-Fast Photo Retrieval

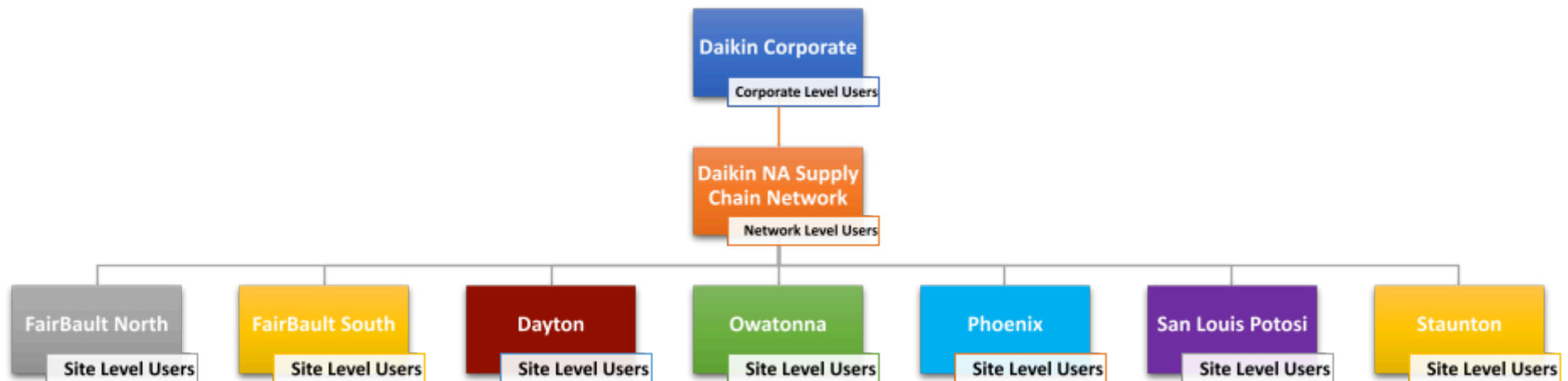
So now the photos are uploaded to the LoadProof cloud, users can easily log on to the LoadProof cloud through the browser and look up photos from wherever they need to. Users logon to the cloud the browser by providing their credentials, which includes a user id and password. Then users are able to input one or more of the contextual data that had tagged the Photos with and then perform a super-fast search. Now users can retrieve the Photos they need, drill down further and look at the Photos individually, zoom in, zoom out, save them locally if they need to (not recommended often) and also examine any notes that was entered and also look at the date stamp, time stamp, GPS coordinates etc. if there is a need to validate any of these data set for each Photo.

### 6.3 Super-Fast Photo Sharing

After retrieving Photos users can share the Photos with anybody else, usually customers, vendors, partners, carriers, cross dock facilities, insurance companies, claims processors, Retailers, consolidation facilities etc. in multiple ways as listed below,

1. By generating one PDF document for the entire load
2. By sending the entire load to a customer by inputting an email address
3. By setting up a customer as a user within LoadProof
4. By generating a LoadProof URL for each Photo and then sharing that URL in an email
5. By generating multiple LoadProof URLs for all Photos and then sharing those URLs in an email

### 6.4 Enterprise Supply Chain Network Architecture



1. Daikin has corporate level users set up that have visibility to look at Photos across all the sites
  - a. These users could be Photo taker users or Photo viewer users or both
  - b. These users could also be Admin users or Non admin users
2. Daikin also has Network level users that have visibility to look at the Photos at the Supply Chain Network level
  - a. These users could be Photo taker users or Photo viewer users or both
  - b. These users could also be Admin users or Non admin users
3. Daikin has site level users that have visibility to look at the Photos at the site level
  - a. These users could be Photo taker users or Photo viewer users or both
  - b. These users could also be Admin users or Non admin users

## 6.5 Integrations with other Systems

1. LoadProof supports integration with other systems.
2. LoadProof is already integrated with Mercury Gate, My Ez Claims System. My Ez Claims is a Freight Claims Processing system that helps shippers process their Freight claims with multiple carriers faster and easier.
3. Loadproof can be integrated by setting up a field to look up from any other system using a hyperlink so that LoadProof data can be pulled into a browser directly by clicking a link in the external system.

## 6.6 Mobile Devices for Quick Start in 15 Days

Daikin procuring a turnkey solution with the devices and the subscription to the software from the same vendor Smart Gladiator, made everything easier to turn on Loadproof within a few days in all the sites. This significantly reduced the ramp up time and Daikin was able to realize the benefits of LoadProof very quickly.

## 7. What are the Benefits?

The results were fantastic, and Troy mentions in his testimonial, that he is super happy. Not only the system was super easy to turn on, now they are not spending a lot of time just looking for Photos. Now they are saving anywhere from 20 to 30 hours per week per facility on the time that is spent on organizing the Photos and retrieving the Photos that are needed for his customers. Life is so much better.

### 7.1 Measurable Hard Benefits

1. Now there is one centralized place to get the Photos from, retrieval of Photos is super easy, Daikin personnel retrieve the Photos in seconds instead of spending hours and hours looking for those Photos. All the time related to this activity is saved now.
2. With the centralized sharing of Photos is super easy, all Daikin personnel have to do is put in the email address and push a button, the person on the other end gets the Photo within minutes and there are no more back and forth conversations wasting time. All the time related to this activity is saved now.

3. Our operators are doing a much better job, when everyone knows the quality of the work we are doing is documented. This directly results in improved customer satisfaction rating, in our customer satisfaction surveys we can see the improved customer satisfaction ratings and hence the relationship with the customer has improved significantly.
4. We are setting up our both internal and external customers as users within LoadProof, basically it is a self-service model, which helps tremendously because now, instead of they calling me, they can look and download the Photos whenever they need, life is so much better, everything related to the Photos is super easy. All the time related to this activity is saved now.
5. Before customers will call us and say, hey there was a damage to the product they received, we wouldn't have anything to show that we did our job right, so all we can tell is hey you know what, we will replace that part for free. But now with LoadProof, we can show the Photos and say, hey we did everything perfectly and look at the condition of the product when it left our facility, so it is not our fault, it is not fair for us to replace this free. All the free replacements we have been doing have reduced now
6. With Freight Claims now by providing Photos we get our freight claims processed faster and also less number of freight claims are rejected.
7. Also now less loads are rejected, before when a load gets rejected, our only option is to pull the load back, which means our transportation cost doubled, fix the issues and we have to ship the product once again. Now with Photos we are able to prove that we did our job right, it is much easier to have that conversation in a rejected load scenario and also we can push back on the customer as we have proof.

## 7.2 Intangible Soft Benefits

1. Everybody in the distribution center feels good about the centralized Photo documentation system, there is no more uneasy feeling in the stomach when a customer reports a damage and submits a damage claim. Nobody is losing sleep over damage claims and rejected loads
2. The visibility to the steps we do to ensure the product is shipped in excellent condition to all parties, customers, carriers, internal stake holders such as the Salespeople, Customer Support people, Support Technicians etc. makes us feel much better, if there is any complaint, we can immediately pull the Photos and show them. The visibility has enhanced transparency, so the trust with our partners have improved significantly, our reputation in the industry has improved as well.
3. Inbound Quality Process - We are also starting to take Photos in the Inbound Quality Audit area, with Photos now we are able to push back on the vendors, also they understand the issues faster and better as Photos are worth thousand words, this results in getting the quality issues addressed faster and better
4. Ability to set up multiple facilities and multiple personnel at the facility level and at the corporate level is very helpful also. It has eliminated unnecessary calls quite a bit, nobody has to wait for the other person to
5. My emails with Photos don't get stuck in more in our email servers. Before with large attachments, my emails would get stuck and then I will have to call IT to get it resolved, all that time is saved.

## 8. What is the Cost Savings?

The savings are summarized below under different sections as appropriate.

### 8.1 Savings due to implementing a Centralized Enterprise Class Documentation System for Photos & Videos

# of Hours saver per facility per week	25
# of Facilities	7
Hourly rate of employees that manage these Photos	\$40

Total Savings in a year per facility	25 X \$40 X 54 = \$54,000
Total Savings across 7 facilities per Year	\$54,000 X 7 = \$378,000
<b>Total Savings per Year within the entire Supply Chain Network</b>	<b>\$378,000</b>

## 8.2 Savings due to less Rejected Loads and Reduced Damage claim submitted by customers

Average # of Shipments in a month	600
# of Facilities in supply chain network	7
Average value of a shipment	\$10000
Average value of all shipments in one facility in one year	\$10,000 x 600 x 12 = \$72,000,000
Average \$ lost (0.5% damages) due to rejected and damages claims submitted by customers in one year in one site	\$360,000
Average value of all shipments in one year within the Supply Chain Network across 7 sites	\$72,000,000 x 7 = \$504,000,000
Average \$ lost due to rejected and damages claims submitted by customers (0.5% of Total)	\$2,520,000
<b>With LoadProof that dollars lost is reduced to 20%, hence the savings are 80%</b>	<b>\$2,016,000</b>

The dollars lost due to rejected loads and damage claims submitted by customers results in \$2,520,000.

With LoadProof, that is reduced by 80%. Hence the savings are 80%.

**Industry Numbers:** The damage claims vary around 2% as per Industry standards. Daikin's is of 0.5% which results in savings of \$2,016,000

## 8.3 Savings due to Faster Processing of Freight Claims

Average # of shipments in one facility in one year => 600 shipments per month x 12 months	7200
# of Facilities	7
Average # of shipments within the supply chain network in one year across 7 sites	50,400
Hourly rate of employees that manage these Photos	\$40
Estimated # of shipments (1% of total shipments) that results in Freight claims within the supply chain network	504
Hours saved with faster processing of freight claims within supply chain network (12 hours saved per freight claim)	504 x 12 = 6,048
Total dollars saved = 6048 X \$ 40/hour	\$241,920
<b>Total Savings/Year within entire Supply Chain Network due to faster Freight Claims Process</b>	<b>\$241,920</b>

The total savings with faster processing of Freight claims results in \$241,920

**Industry Numbers:** Average number of Freight claims issued for Outbound shipments is approximately 1% of the number of shipments. Daikin is around 1% which results in a savings of \$241,920 with faster processing of Freight claims

## 8.4 Quality Audit after Inbound Receipts – Direct Hard Savings

Average # of Shipments in a month	600
# of Facilities in supply chain network	7
Total # of shipments in one month across the 7 sites	600 X 7 = 4200



Total # of shipments in 1 year across 7 sites	4200 X 12 = 50,400
Average # of issues identified in Quality Audits = 2% of total shipments	0.02 X 50,400 = 1008
Total hours spent in resolving those issues identified in quality audits – 10 hours per unit	1008 X 10 = 10080 hours
Total \$ spent in the labor in resolving the issues identified in quality audits @ \$40 / hour	10080 X \$40 = \$403,200
<b>As the Quality issues are documented using Photos vendors understand the problems better and resolve them quickly resulting in reduced time spent on clarifying quality issues. This time of spending 10 hours per unit is reduced to 2 hours per unit, so the 8 hours are saved per unit.</b>	
Total Hours spent in resolving the issues identified in Quality audits using LoadProof	1008 X 2 = 2016
Total \$ spent for in the labor in resolving the issues identified in quality audits @ \$40/hour	2016 X \$40 = \$80,640
<b>Savings = \$403,200 - \$80,640</b>	<b>\$322,560</b>

## 8.5 Total Savings per Year

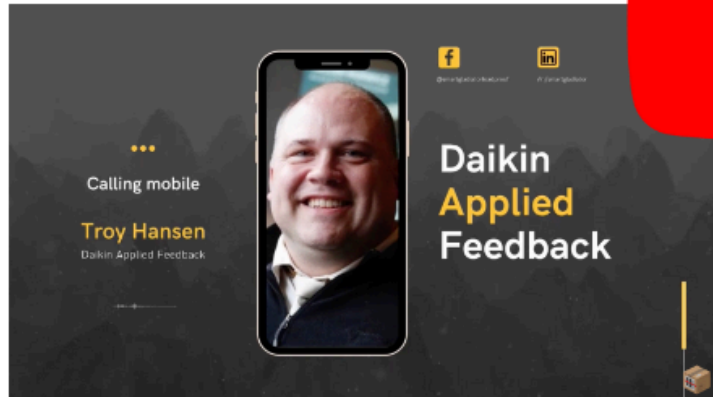
Savings due to Centralized Photo Documentation System	\$378,000
Savings due to reduced rejected and damages claims submitted by customers	\$2,016,000
Savings per Year due to faster processing of freight claims	\$241,920
Savings due to reduced labor spent in quality audit	322,560
<b>Total Savings</b>	<b>\$2,958,480</b>

## 9. User Testimonial Video

[Click this to watch the full Testimonial video.](#)



## LoadProof Testimonial - Troy Hansen, Daikin Applied



[Click this to watch the full Testimonial video.](#)



## LoadProof Testimonial - Jesus Emmanuel Vazquez Rios, DAIKIN MÉXICO

