Information Architecture and Navigation Case Study

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Overview

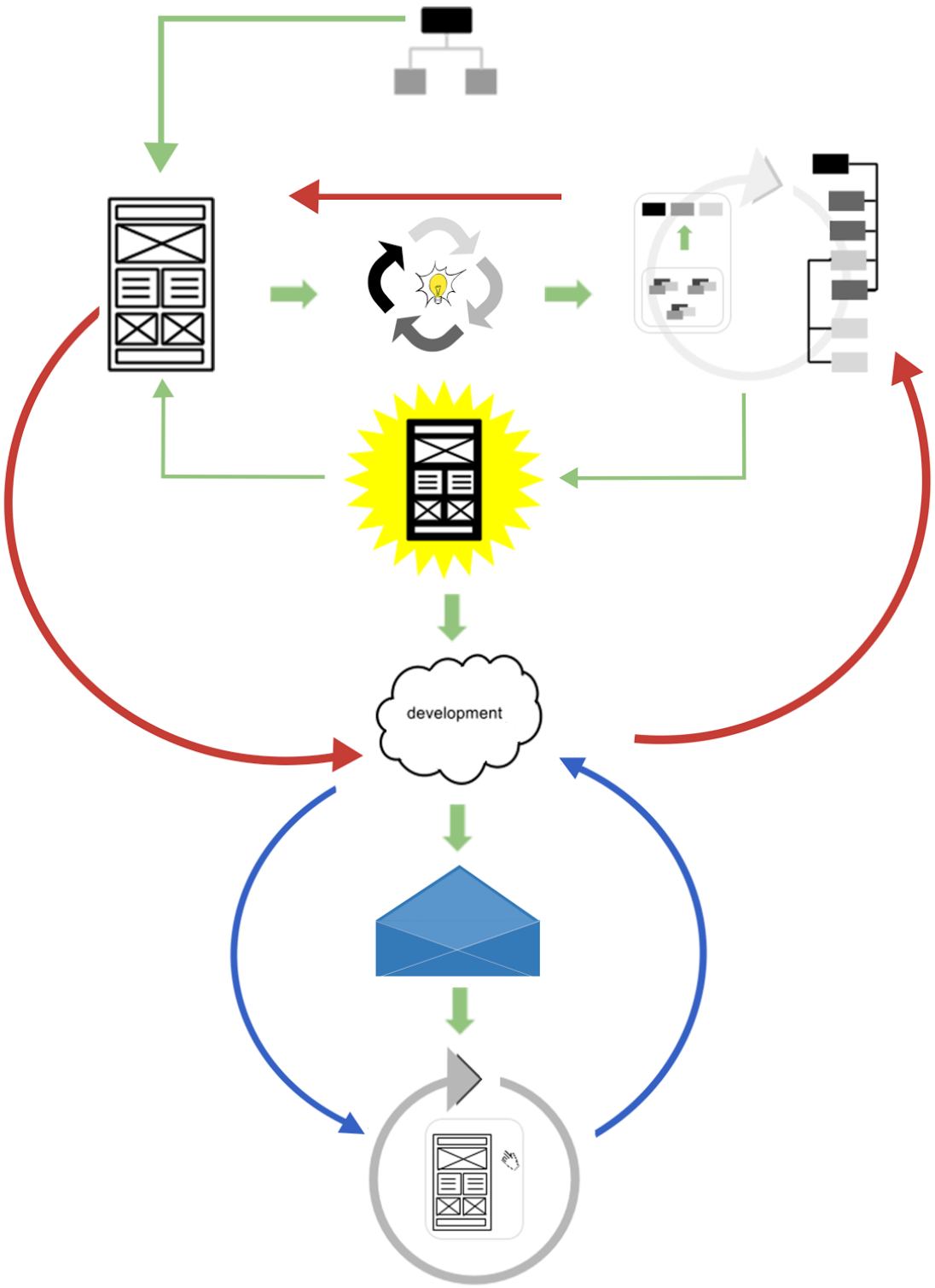
In order to effectively consider redesigning tne rockauto.com homepage navigation, the structure and information architecture needs to be examined. First impressions are, the site is designed for automotive professionals and those that are conscientious of the details of the parameters of the items they are searching for.

The visual design is minimalistic and direct with the product makes, presented prominently to the user. The current navigation resides in a sidebar located on the left side of the page. Overall, the site is functional and effective with consistent page locations displayed prominently in the header. Links are clearly identified via color adjustments and an underlined presentation. There are no drop down menus only expandable headings consistent with the manner in which users in a mechanical field or users searching for a specific entry point scope items navigate a database. A search bar is available for direct search capabilities.

Approach: Assessing the navigation is a natural design progression after addressing the information architecture. The following tools and methods will be utilized to ensure the site organization is properly aligned with the users expectations. Initially, observation and conversation provides insight into how the site is utilized. A heuristic evaluation or cognitive walk-through will aid in initially identifying if a user “knows” where things are and “how” to do things. From these observations, open and closed card sorting will aid in identifying the appropriate labels to use for navigation. Tree testing is the next logical test to utilize in order to effectively refine the results gleaned from the the initial card sort exercise. This test will not only measure how effectively users are able to locate items in the navigation, it will also identify any design flaws that still exist after initial card sorting.

In order to maximize the aforementioned methods, it is important to iterate through the tests in an effort to refine the effectiveness of the navigation. On the foundation of a solid information architecture any visually designed enhancements will reinforce the usability of the overall design.

Process Flow Chart



Test Plan

PRODUCT UNDER TEST

What's being tested? What are the business and experience goals of the product?

Rockauto.com; a parts website that offers automotive, motorcycle, marine and universal products.

GOAL: **Liberate information hidden behind the store counter.**

BUSINESS CASE

Why are we doing this test? What are the benefits? What are the risks of not testing?

Redesign homepage navigation and data presentation.

BENEFITS: Improved information organization and enhanced usability.

RISKS: Diminished findability resulting in a reduction of revenue.

TEST OBJECTIVES

What are the goals of the usability test? What specific questions will be answered? What hypotheses will be tested?

GOALS

1. Identify labels for top level organization/navigation.
2. Measure findability of site content.

QUESTIONS

1. How does the current/proposed site structure/design impact findability where usability is the focus?
2. Do people understand how to locate and purchase mechanical parts on the site?
3. How long does it take users to identify, locate and complete the purchasing process?

PARTICIPANTS

How many participants will be recruited? What are their key characteristics?

- 5 to 7 participants recruited via email questionnaire

- Ideal participants have solicited general mechanical resources in the past 6 months
- mix of men and women, mechanical professionals and consumers

EQUIPMENT

What equipment is required? How will data be recorded?

- Computer with internet access.
- Optimal Workshop card sort and tree test tools.
- Paper prototype.

The Optimal Workshop application will log and measure usability issues on task.

TEST TASKS

What are the test tasks?

1. List the categories you expect to find on an automotive parts website.
2. Group the following *"scenarios"* under the categories listed.

Heuristic Walkthrough

Introduction

A usability review of Rockauto.com was performed as a precursor to redesigning the sites navigation. Rockauto.com is a website that caters to users that want to find low cost solutions for high quality automotive and mechanical parts. The site provides a resource section which accommodates vendors of all kinds, making them accessible to site visitors. The review identified potential usability issues with the website focusing on the overall structure and information on the site.

This document provides a description of the evaluation methodology, an overview of the findings, and recommendations for future action. It should be emphasized that the findings of this evaluation do not represent a comprehensive set of usability problems for every page in the site. Rather, it identifies the most critical usability issues and highlights examples of problems that should be addressed throughout the site.

The Heuristic Evaluation Method

The heuristic evaluation is a well-known, standard technique used to identify potential usability problems in an interactive system or user interface. The method involves having a small group of evaluators in user interface design examine an interface for compliance with recognized usability principles.

The following standard principles of user interface design were used to evaluate the usability of the site [Nielsen]:

Visibility of System Status

The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.

Match Between System and the Real World

The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.

User Control and Freedom

Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo capability.

Consistency and Standards

Users should not have to wonder whether different words, situations or actions mean the same thing. Follow platform conventions.

Error Prevention

Even better than good error messages is a careful design that prevents a problem from occurring in the first place.

Recognition Rather than Recall

Make objects, action and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.

Flexibility and Efficiency of User

Accelerators – unseen by the novice user – may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.

Aesthetic and Minimalist Design

Dialogues should not contain information that is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

Help Users Recognize, Diagnose and Recover from Errors

Express error messages in plain language (no codes), precisely indicate the problem, and constructively suggest a solution.

Help and Documentation

Even though it is better if the system can be used without any documentation, it may be necessary to provide help and documentation. Any information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.

The evaluation was conducted from the perspective of a target user, in this case someone who is actively planning a party or event.

Note that while a heuristic usability evaluation is an efficient means of identifying and prioritizing potential usability problems, it does not replace the need for usability testing with representatives of the target audience. These are complementary techniques best used in conjunction with each other.

Findings

Navigation and Task Flow

The main navigation of the website rests on the left panel of the home page only (fig 1). Although its presence is prominent it appears as a secondary means of navigation. There is a second navigation which is situated "center stage (fig 1)." This navigation is for the parts catalogue which is the mainstay of the website. This secondary navigation presents options synonymous with a parts catalogue. There is a menu above the parts search area to change the currency display (fig 1). The main search bar provides multiple filtering options (fig 1). The site offers groupings based vehicle manufacturer and expand to narrow choices (fig 1). Visual feedback occurs when the user maneuvers throughout the page. The main banner houses the company logo (fig 1), page title (fig 1) and an obscure link to promotions (fig 1). Despite the prominence of headings and links the content presents in a cluttered manner leaving the user overwhelmed.

Navigation to internal pages reveals the page title in the main banner (fig 2) while a "breadcrumb" trail is visible while navigating the catalogue (fig 2); both notifying the user about their current location within the site. As the user navigates to new pages, they are opened in a new window creating excessive browsing tabs (fig 2). The main site navigation does not follow the user from page to page (fig 3).

Utilizing the top-most search box provides the user with a filtering feature which narrows the expansive listing of automotive vendors (fig 1). There is a repair index comparison tool which although helpful is not prominently displayed (figs 1, 2). The navigation headings are subtle and bulleted lists simulate drop down menus (fig 1). Feedback is immediately provided at the top of the page reflecting the users location (figs 1, 2). Although the repair index provides an excellent tool for maintenance comparisons, the design is very experiential in its presentation (figs 4). Users are able to easily sift through manufacturers because of the prominently featured alphabetical listing (figs 1).

Screen Layout and Data Presentation

The site maintains a consistent design layout throughout all the pages. Despite the sites cluttered appearance effort has been made to ensure the information hierarchy is visible through consistent headings ensuring ease of understanding (figs 1, 2). The two column layout makes content easy to scan. There is an adequate usage of white space providing breathing room on the pages. Subsequent pages are cluttered and are difficult to scan due to the extensive bulleted lists (fig 5).

There does not appear to be any dedicated help menu as the site is designed to provide specific information and resources in an effort to facilitate expedited part purchase.

Color, Typography and Graphics

Aesthetic treatment is dull and boring although it is consistent throughout. Font styles and sizes seem appropriate for headings but menus become more difficult to decipher and the body copy less easy to read. There are no icons and content is presented primarily in list format (fig 5).

User Guidance

Feedback is provided throughout the process of making selections. Specifically the language and price selector displays user specific input feedback (fig 1). Instructions are built into the checkout form (fig 6). There is an option to create an account (fig 1) which facilitates the users ability to customize search lists. Tooltips are included providing amplifying information as needed.

Recommendations and Next Steps

The website attempts to streamline the process associated with automotive and mechanical parts searching. The structure is such that all elements for a vehicle are accounted for and additional recommendations are provided. A user needs to have moderate automotive knowledge to effectively utilize the site. The site is composed of two disconnected websites; a parts catalogue and an automotive information resource. An effort must be made to connect these two entities in a more effective manner.

The following steps should be taken to address the most significant usability issues:

- Maintain the presence of the sites navigation on internal pages.
- Combine site and catalogue navigation.

Other recommendations to improve usability include:

- Increase body copy font size to improve scanability.
- Incorporate icons to increase recognition and recall.
- Consider color adjustments to account for potential contrast issues.
- Prominent “call to action.”
- Add interactive promotions.
- Redesign layout incorporating current design trends. (fig 14)

The heuristic evaluation used here is a quick and inexpensive method of identifying problems that may contribute to users’ inability or unwillingness to a use rockauto.com to their satisfaction. Although the heuristic usability evaluation is an efficient method, it is not intended to replace actual user testing. It is recommended that once the most critical issues raised in this report have been addressed, representative users participate in a testing

session employing fixed task scenarios and an exploratory browsing period. Such testing will likely help reveal other usability issues.

Card sort findings

Objective

The card sort was conducted to test the information architecture on rockauto.com. The study sought to uncover how automotive professionals and consumers from various backgrounds and roles expected to see content organized on a website where usability is the focus.

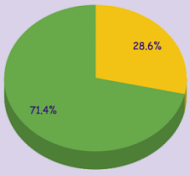
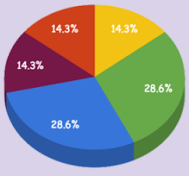
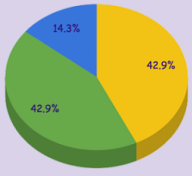
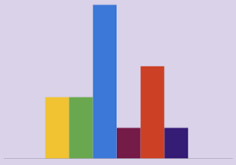
Method

The card sort was completed using Optimal Sort from the Optimal Workshop website. As an unmoderated closed card sort, participants organized 14 phrases into four categories that they believed fit most naturally. The participants were permitted to create and name their own categories, as well as an opportunity to provide feedback on cards they felt did not fit. Participants were required to sort all the cards which were also randomized for each participant.

Participants

The target test group were males and females who periodically purchase automotive parts and expressed a willingness to attempt various kinds of automotive repairs.

The total number of individuals who attempted and completed the card sort was 7. None of the participants abandoned the sort. The following results cover the 7 participants who completed the sort.

Gender	Age	Frequency of purchase	Willingness to attempt
			
female 2 male 5	20-29 1 30-39 2 40-49 2 50-59 1 60-69 1	occasionly 3 monthly 3 daily 1	oil change 4 rotate tires 4 replace wipers 7 replace brakes 3 change lights 5 tune up 3

Findings

The sort provided two data types; qualitative and quantitative. The qualitative data was derived from the pre/post survey questions This information helped to validate the survey participants as they related to the target demographic. The card sorts results matrix (fig 7) and popular placement matrix (fig 8) provided the quantitative and the measurable information to drive redesign decisions.

Initial observations are as follows; 100% of the survey takers express a likelihood to purchase automotive parts; with 42.9% reporting “a few times a month.” These survey takers also revealed that they would all attempt the listed automotive repairs. The willingness to attempt the repairs rate decreased as the difficulty of task increased: changing windshield wipers 100%, change headlights 71.4%, oil change and tire rotation 57.1%, tune up and replace brakes 42.9%. There was no significant deviation between how the men and women sorted the cards.

The data does not suggest any instances “racers” or “outliers” as the median time of 1.8 minutes is within the standard deviation. Further examination does not reveal any bias based on age or automotive experience. This lack of significant variance substantiates the pool of survey takers as an effective group for examination.

The Results Matrix (fig 7) reveals how the participants sorted each card and the frequency of placement. Darker/higher numbers signify a stronger relationship between the card and the category. There were eight unanimous selections spread between each category. **Shopping** had the greatest number of unanimous selections with 5**.** Based on the findings, the **Company Info, Resources** and the **Shopping** categories appeared to act as a “fallback”category capturing cards from other categories. The **Company Info** and **Resources** categories also appeared to be used in a table of contents type fashion. A point of interest lies in the **Shopping** category as it was the most frequently utilized destination. The data suggests a phraseology issue or ambiguity in the **Resources** label heading, but this may be attributable to an overlap of subject matter in the sites content; specifically identifiable with the strong correlation between cards sorted under the **Company Info, Resources** and the **Shopping** labels.

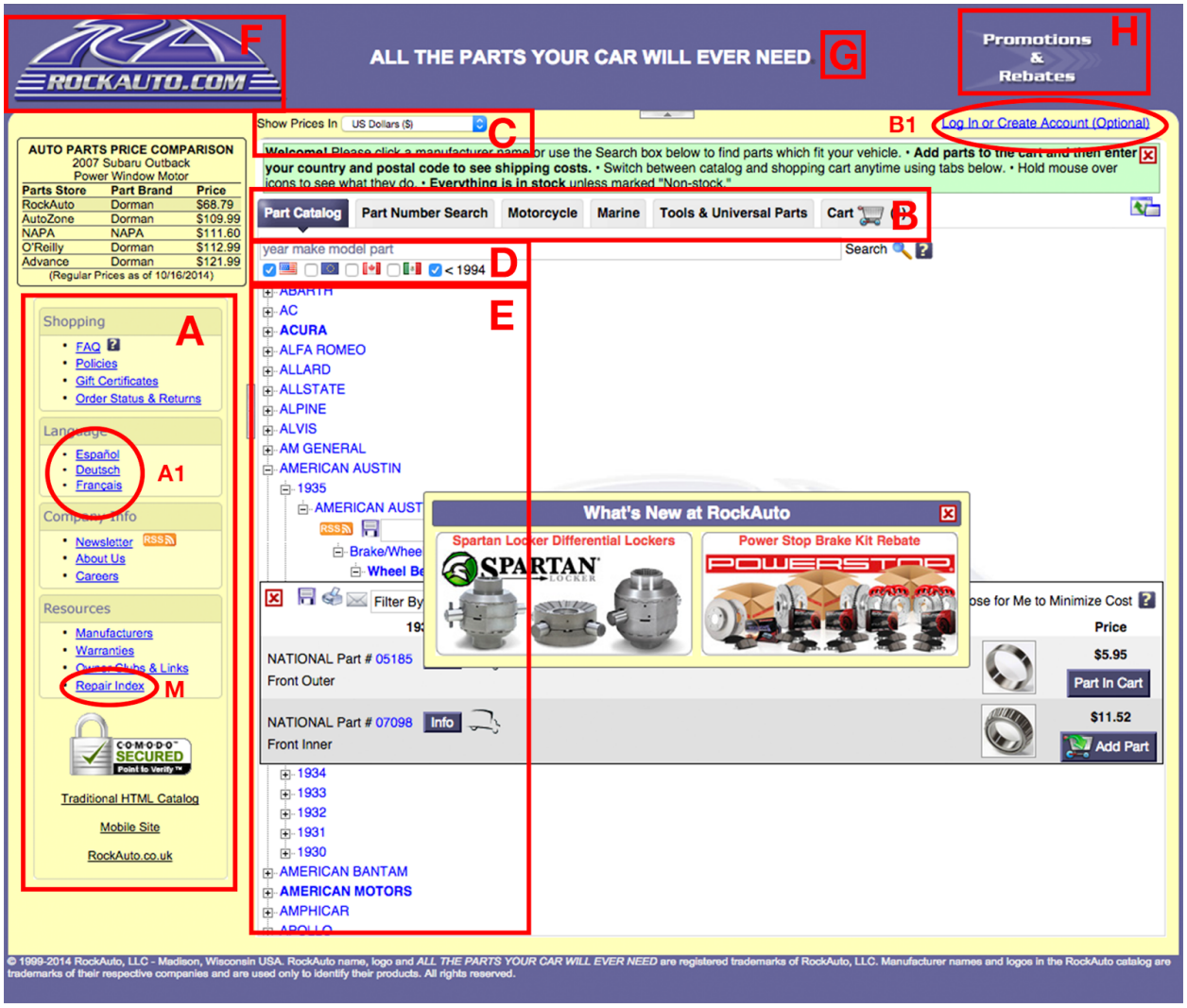
The data supports potential findability issues because of similarities in content relevance as it relates to heading names diminishing distinguishability. Focusing on the Popular Placement Matrix (fig 8) provides additional insight into how the participants understood and interpreted the cards. The frequency of placement and the chosen categories provide a strong case for links and pathways across categories. It is clear that the **Shopping** category was the most recognizable label. The periodic placement of cards in the other categories suggest the need for sub-headings. Because of the problems of distinguishability between **Company Info, Resources** and the **Shopping** labels, the **Resources** label may need to be changed to a clearer identifier.

Moving forward

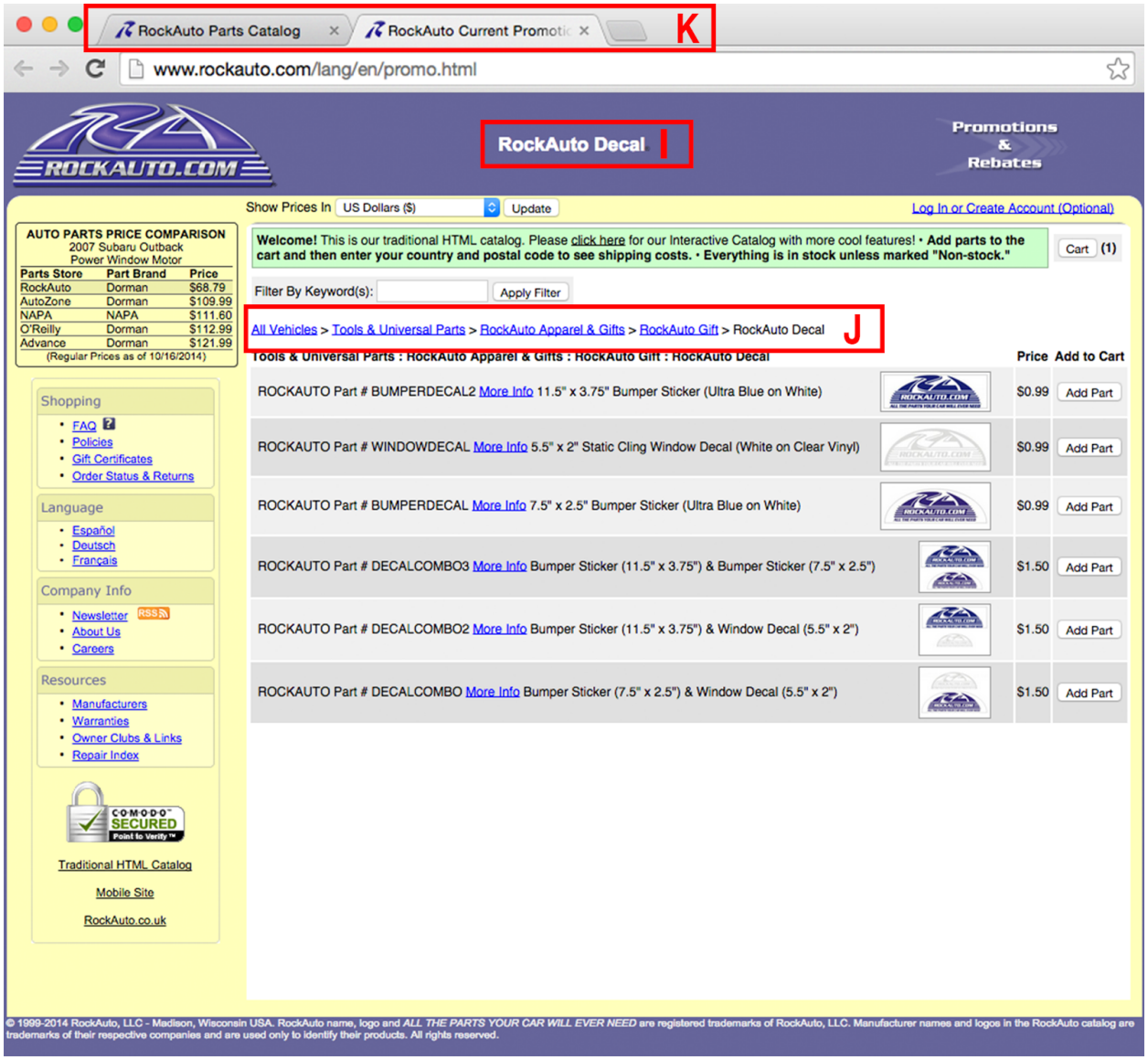
The sort revealed a few crucial redesign discoveries; the current information architecture creates "backtracking" navigation to arrive at desired tasks diminishing usability (fig 9). The **Resources** heading needs to be addressed. **Shopping** needs to be prominent in the users experience. The **Company Info** and **Resources** categories appeared to be problematic and was used like a table of contents. Consideration must be paid to the presentation of the "**Company Info**" and **"Resources"** content. A complete overhaul is necessary to prevent its glossary like utilization. The inclusion of an expanded persistent navigation panel will ensure users arrive at their desired destination in an on demand fashion.

Although the results provide useful data, more participant involvement and additional testing (Tree Testing) will better assess the sites structure specifically navigation and quantify redesign decisions. The overall information architecture is sound but the navigation requires an overhaul. The data as presented tested soundly providing insight on required adjustments, specifically to the category headings and firmer pathways between pages.

Appendix



Rockauto.com
fig (1)



Rockauto.com
fig (2)

ROCKAUTO.COM
ALL THE PARTS YOUR CAR WILL EVER NEED

About Us

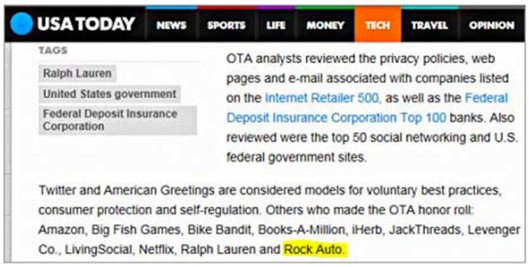
History:
RockAuto, LLC was founded in Madison, Wisconsin in 1999 by the Taylor family. Their engineering background, passion for old cars, and desire to liberate information hidden behind the auto parts store counter led the Taylors to start RockAuto. Over the years, the company and its selection of parts have steadily grown. Millions of parts orders have been successfully delivered to RockAuto customers.

Company Today:
RockAuto ships thousands of auto parts from over 300 manufacturers to customers on every continent except Antarctica-including APO/FPO addresses. The RockAuto catalog is updated daily with mechanical parts like brake pads and shock absorbers, body parts like bumpers and mirrors, interior trim like door handles and carpets, and major assemblies like steering gears, CV axles, engine long blocks, and complete transmissions. There are no mechanics on staff (RockAuto is a store, not a repair shop) but service manuals are available to help customers learn how to perform a repair. The RockAuto catalog is expanding constantly. Someday, it may be possible to build an entire car using parts from RockAuto!

Customer Service:
Exceptional customer service through leading edge technology is a top priority at RockAuto. Business hours and contact information appear below. Responsiveness to customers is recognized: RockAuto.com consistently earns top scores in third party customer service surveys.

Video courtesy of PowerBlockTV.com

RockAuto has been hailed as one of the top 10 companies for best practices by the Online Trust Alliance! Read the USA Today article here.



View our privacy policy
Request a Dun & Bradstreet report on RockAuto, LLC

Read Customer Reviews powered by Customer Lobby

ACCREDITED BUSINESS
Click for Review
BBB Rating A+

Contact Information:
RockAuto, LLC
6418 Normandy Lane
Madison, WI 53719

NOTE: Our operations are highly automated, parts are stocked in multiple locations, and all orders are shipped to customers via common carrier. It is not possible to pick up parts in person. If you need to return something, please see Instructions for Returns and Cores.

To pay by mail, please enter your order online with "Check or Money Order" as the Payment and write the order number on your check (so we know which order to process when we receive your payment).

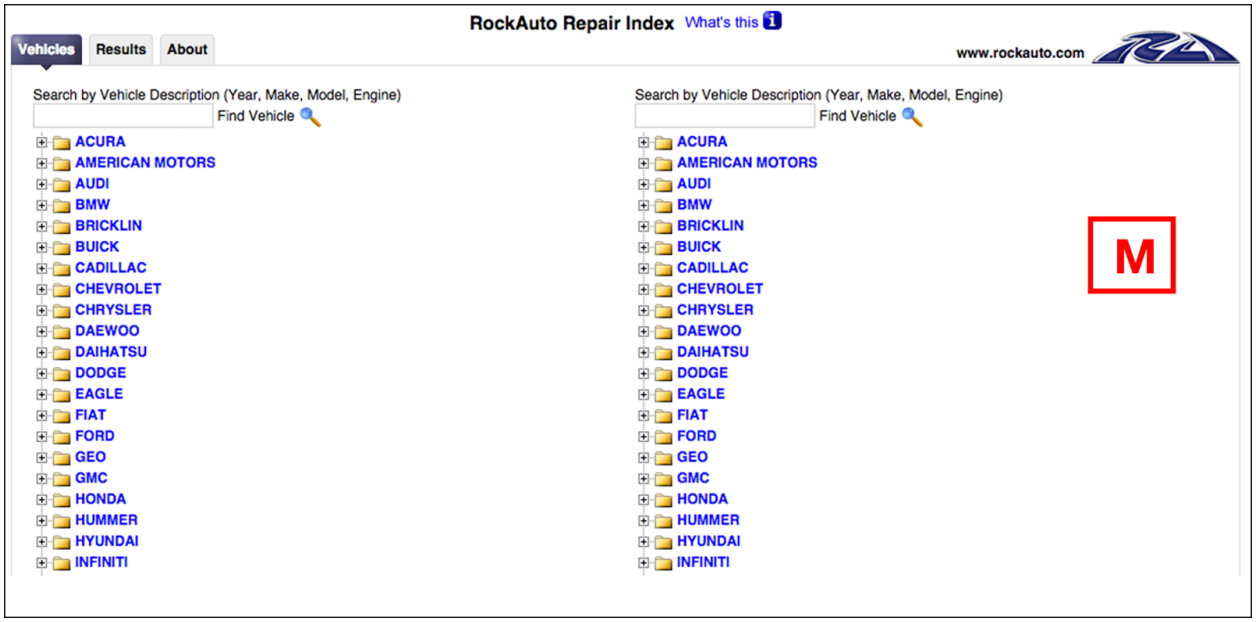
For help with online ordering, please visit our FAQ page.

To check order status, arrange a return, cancel an order or report a problem with an order, please use our Order Status & Returns page.

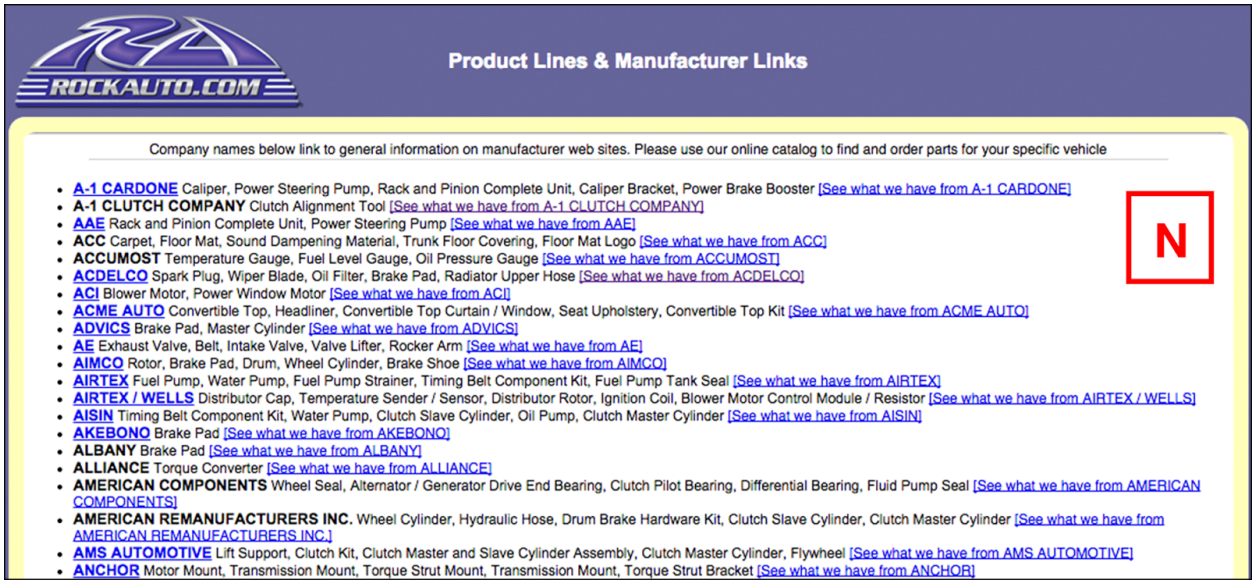
For something else, here's how to reach us:
Email: service@rockauto.com
Phone: 1-608-661-1376
Fax: 1-608-819-6350
Toll-Free (North America): 1-866-ROCKAUTO

Office Hours (U.S. Central Time)
Monday - Thursday 6 a.m. to 10 p.m.
Friday 6 a.m. to 9 p.m.
Saturday 7 a.m. to 6 p.m.
Sunday 8 a.m. to 4 p.m.

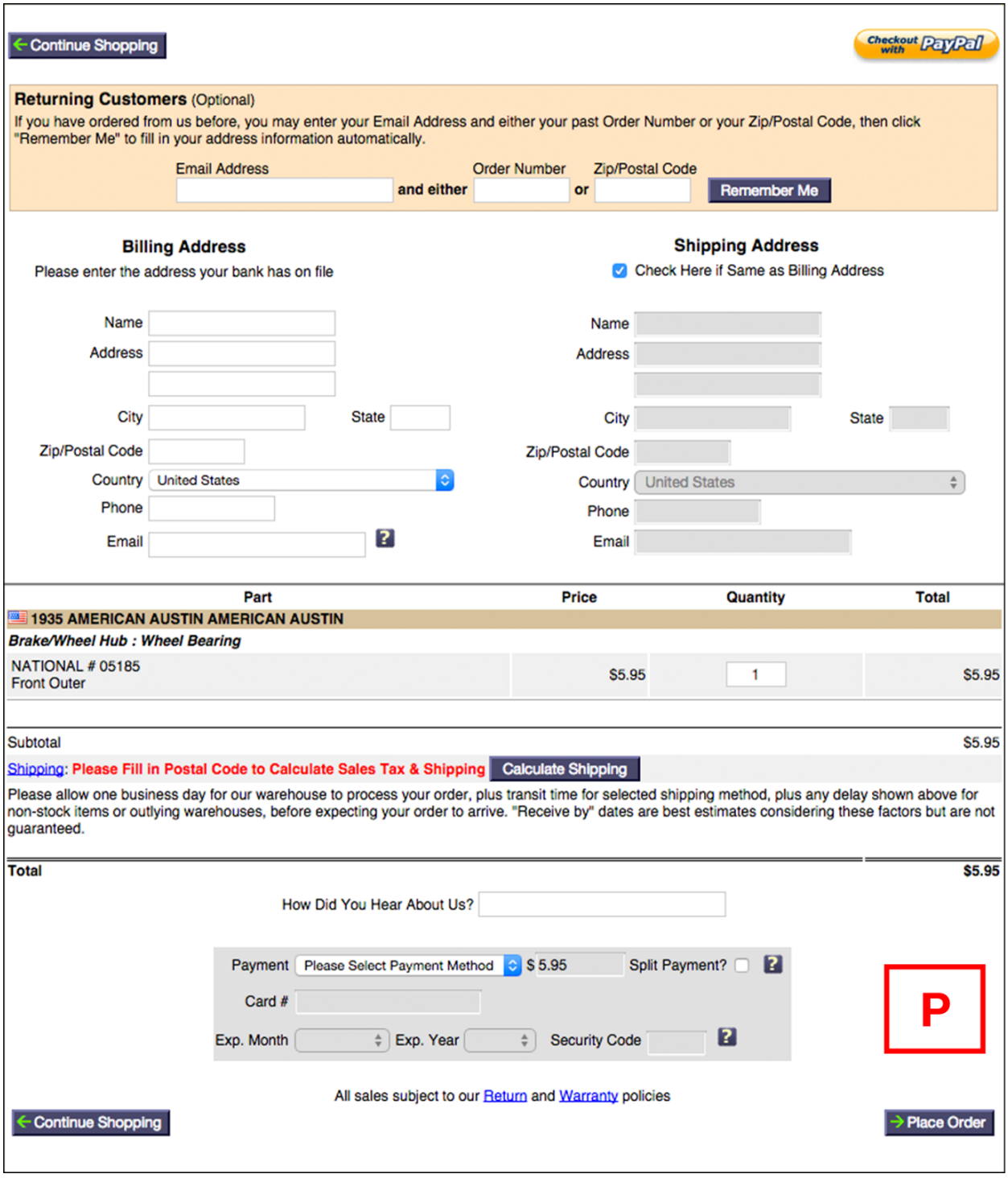
Rockauto.com
fig (3)



Rockauto.com
fig (4)



Rockauto.com
fig (5)



Rockauto.com
fig (6)

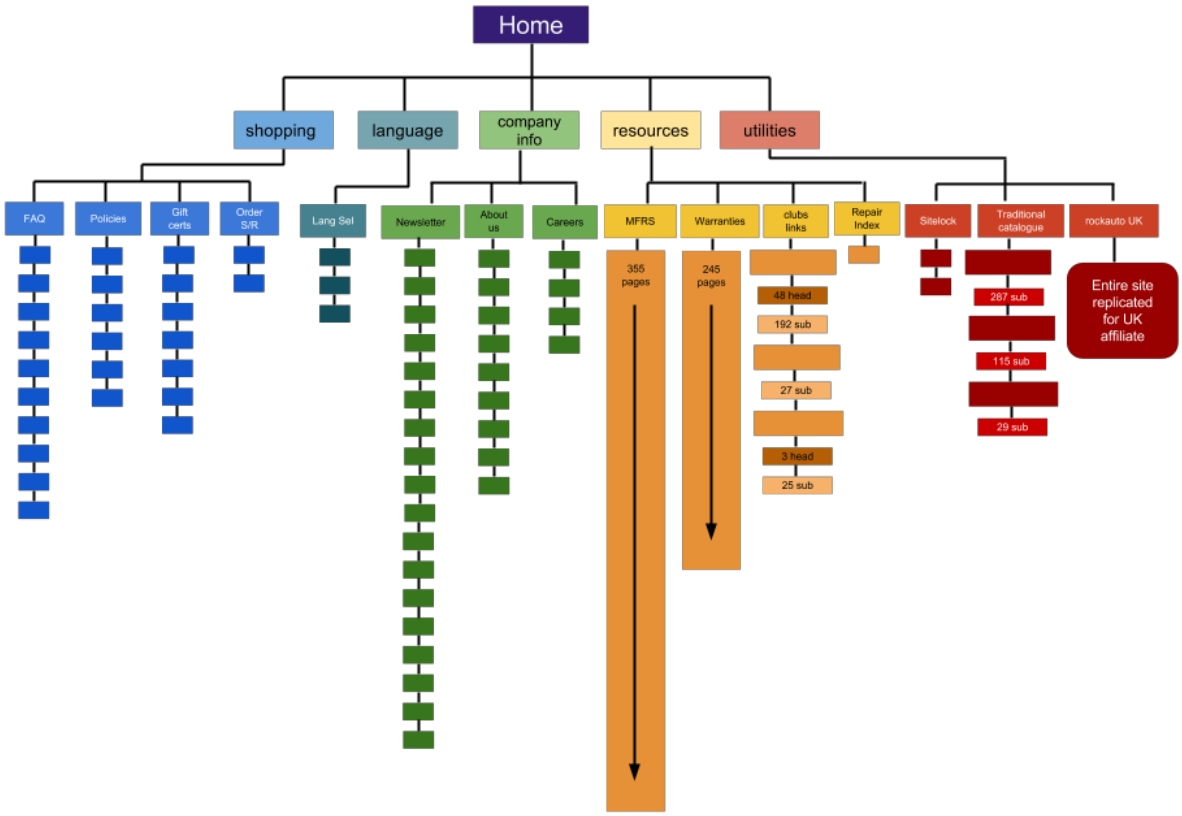
The results matrix shows the number of times that each card was sorted into the corresponding category.

	Company Info	Language	Resources	shopping
Are you rated by the Better Business Bureau	5		2	
Do you carry parts for other than automobiles				7
Do you ship overseas				7
I want to read customer reviews	5		2	
I would like to join a car club			7	
I would like to work at rock auto	6		1	
Id like to surprise my husband with some new headlights				7
Is there a warehouse I can pick up my parts at			4	3
My mechanic only reads spanish		7		
What are your warranty policies	2		1	4
What is the return policy				7
What is the return/refund policy				7
What makes and models do you carry			1	6
Where are you located	7			

Results Matrix
fig (7)

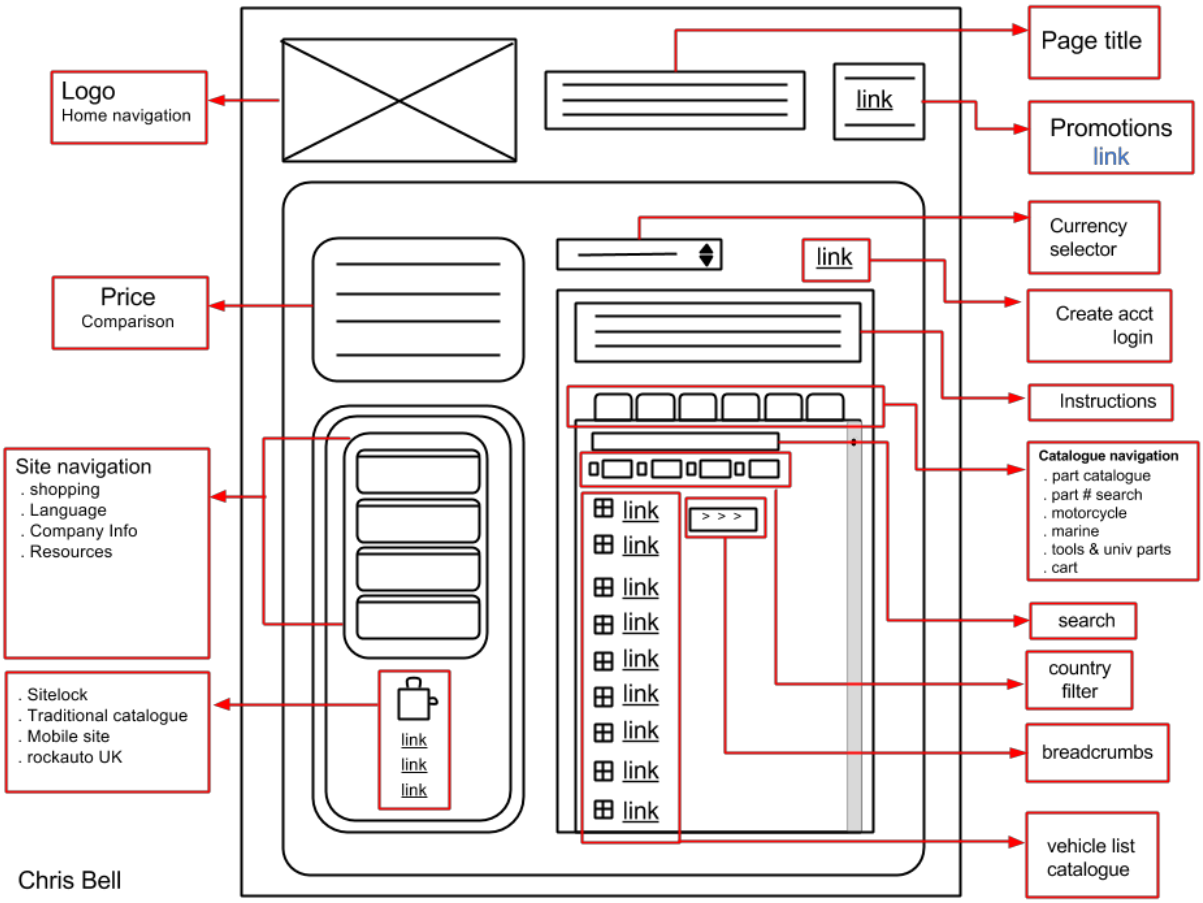
	Company Info	Language	Resources	shopping
Where are you located	100%			
I would like to work at rock auto	86%		14%	
I want to read customer reviews	71%		29%	
Are you rated by the Better Business Bureau	71%		29%	
My mechanic only reads spanish		100%		
I would like to join a car club			100%	
Is there a warehouse I can pick up my parts at			57%	43%
What is the return policy				100%
Do you carry parts for other than automobiles				100%
Do you ship overseas				100%
What is the return/refund policy				100%
Id like to surprise my husband with some new headlights				100%
What makes and models do you carry			14%	86%
What are your warranty policies	29%		14%	57%

Popular Placement Matrix
fig (8)

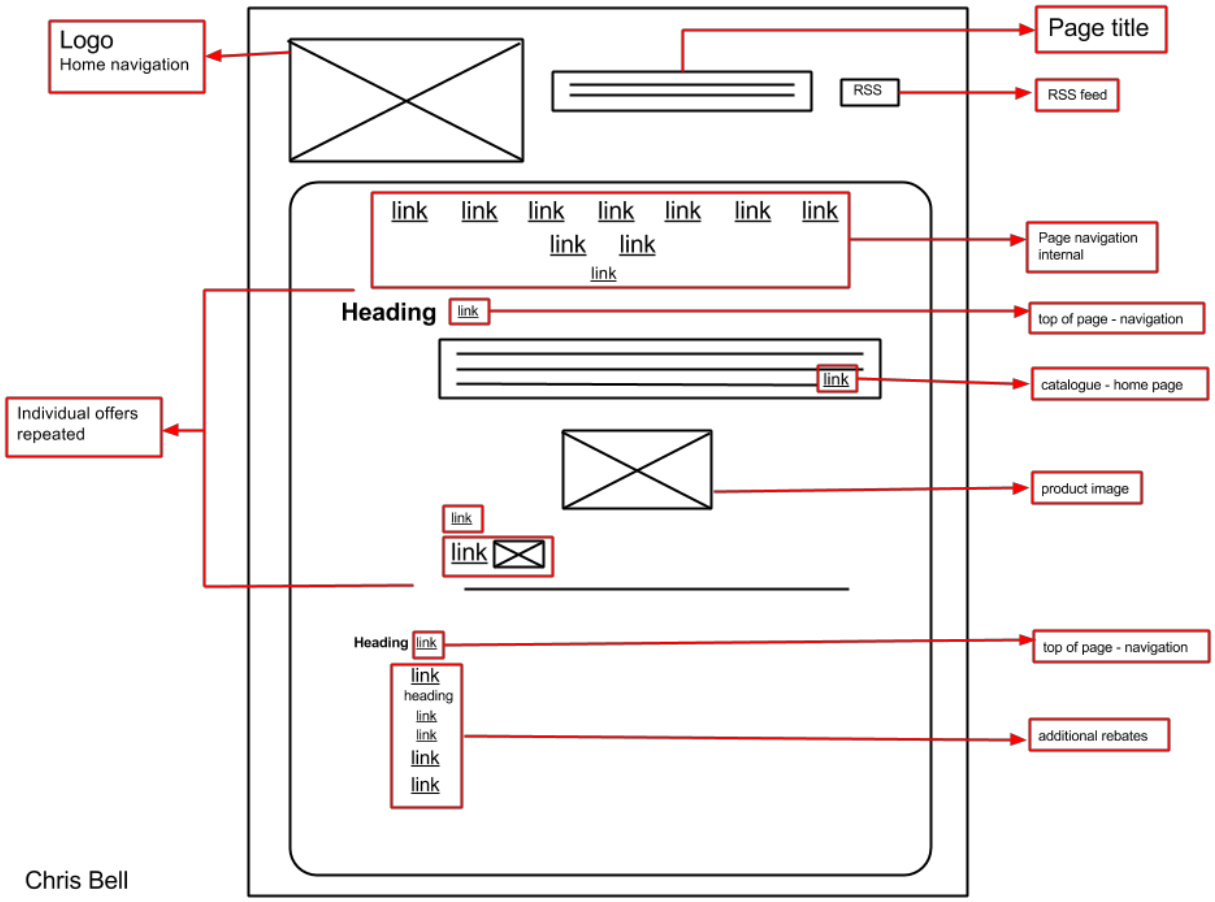


Rockauto.com information architecture
fig (9)

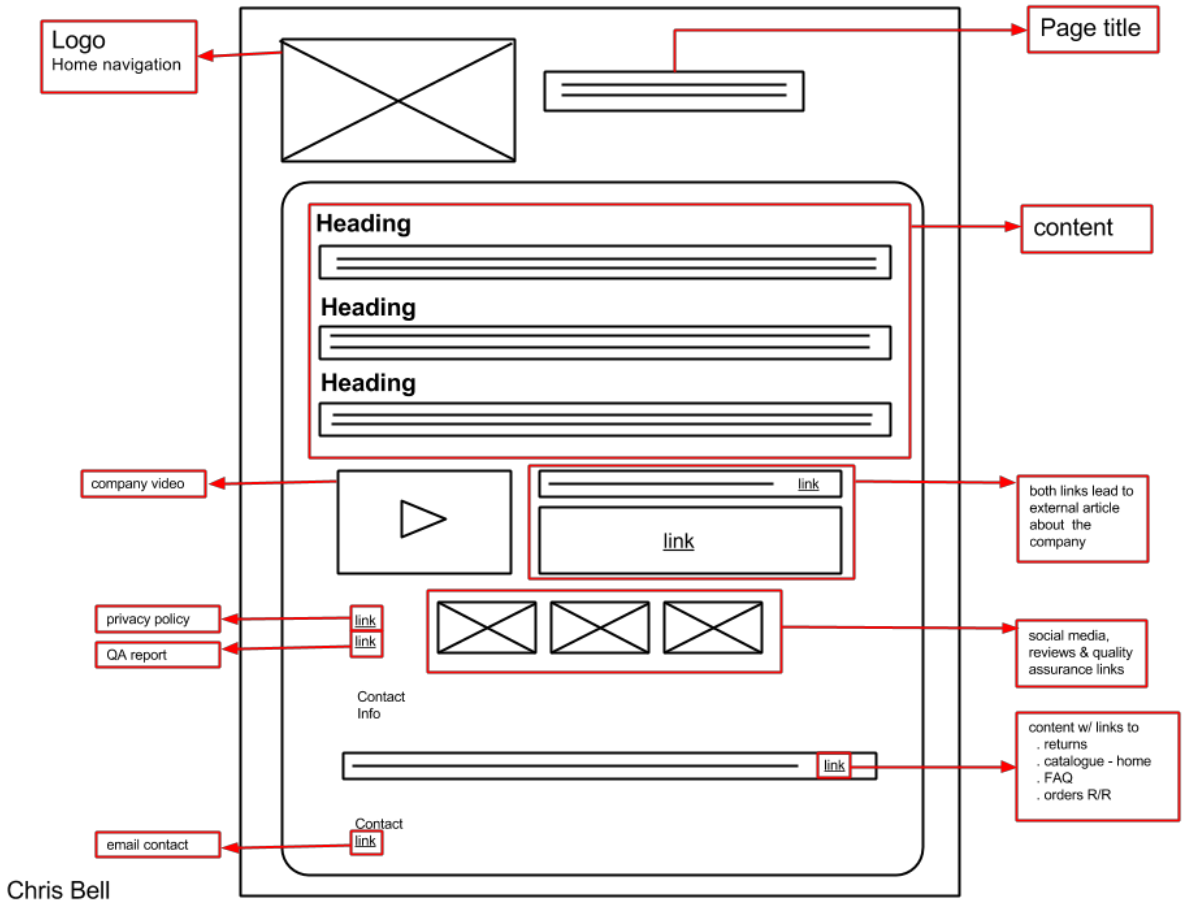
Diagram represents the overall structure of the site. The catalogue has an entirely separate information architecture indicated by the *catalogue navigation* in figs (1) (10).



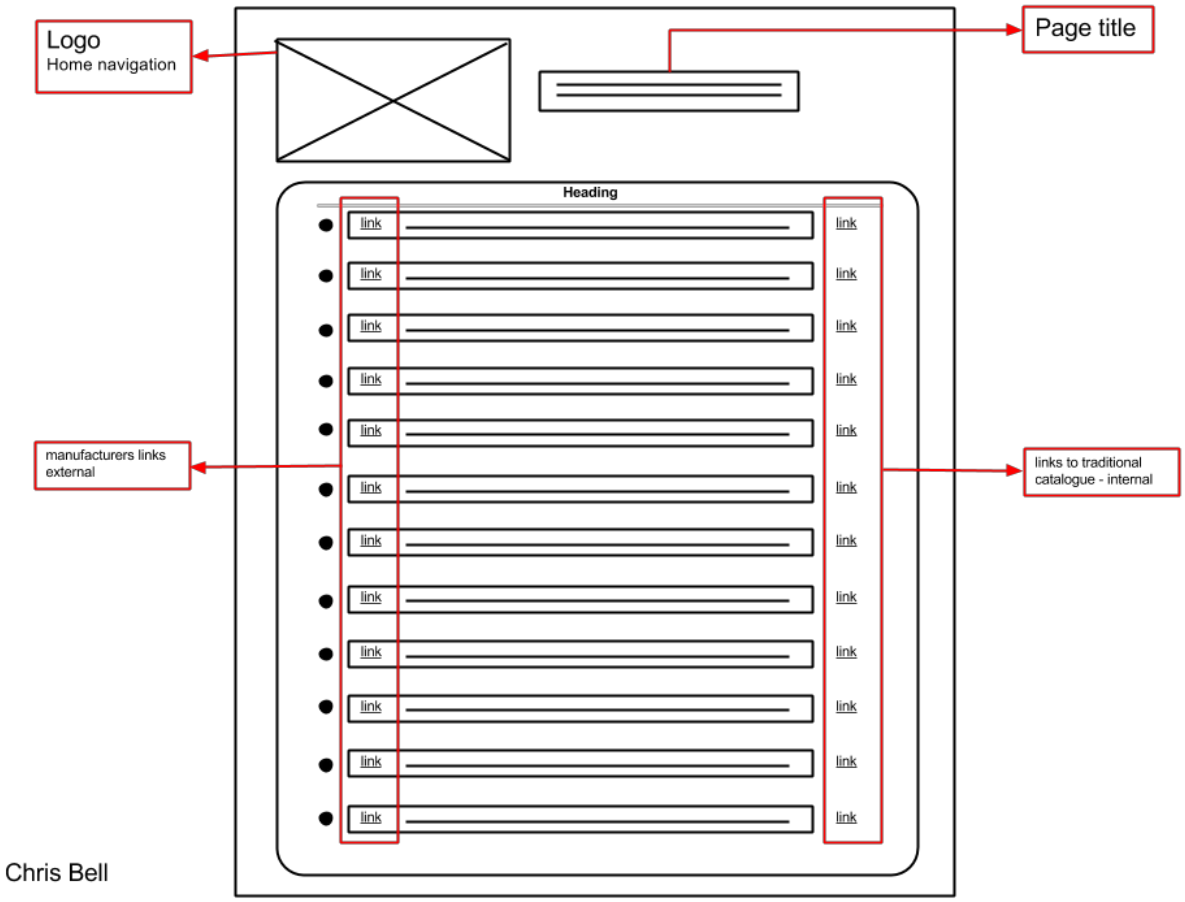
Rockauto.com homepage
fig (10)



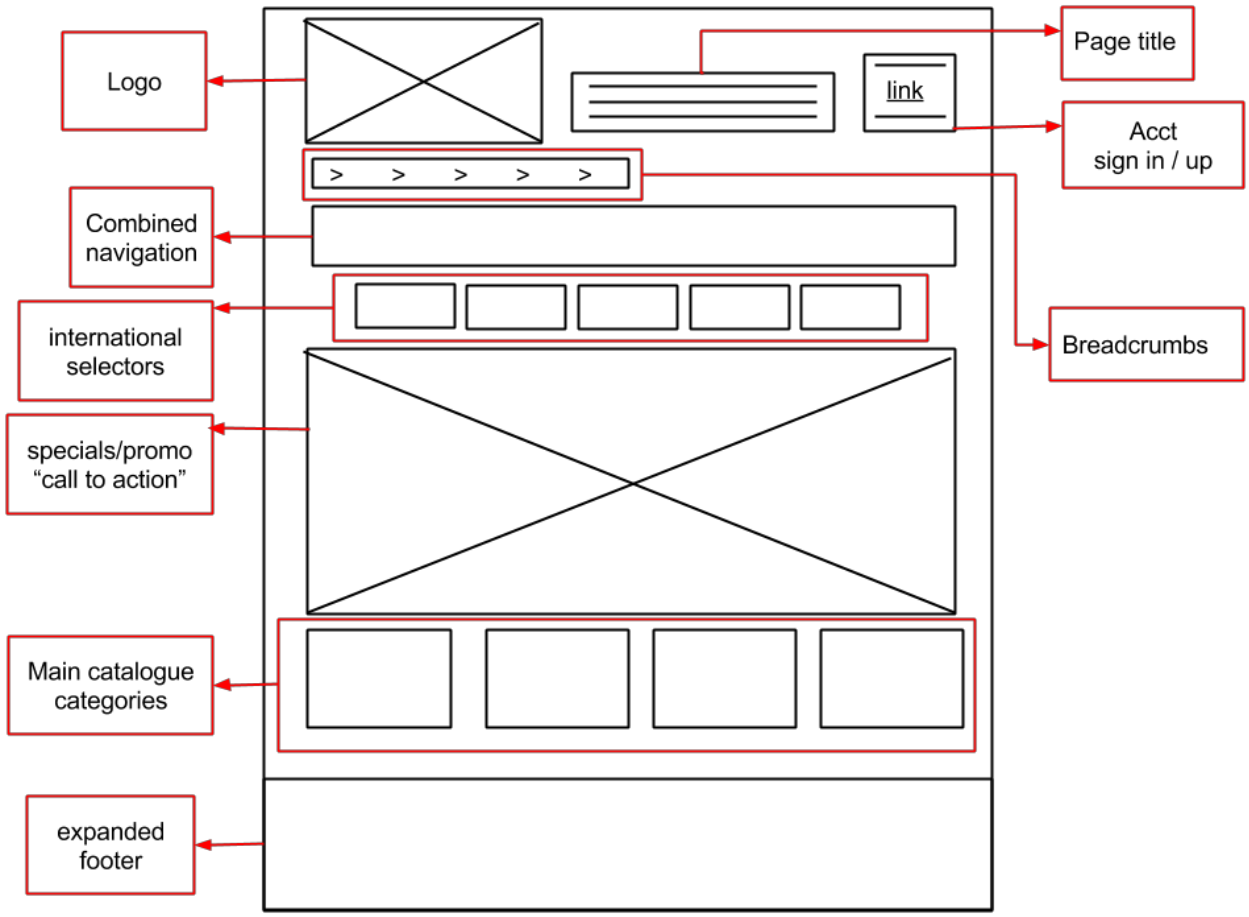
Rockauto.com about us
fig (11)



Rockauto.com company info
fig (12)

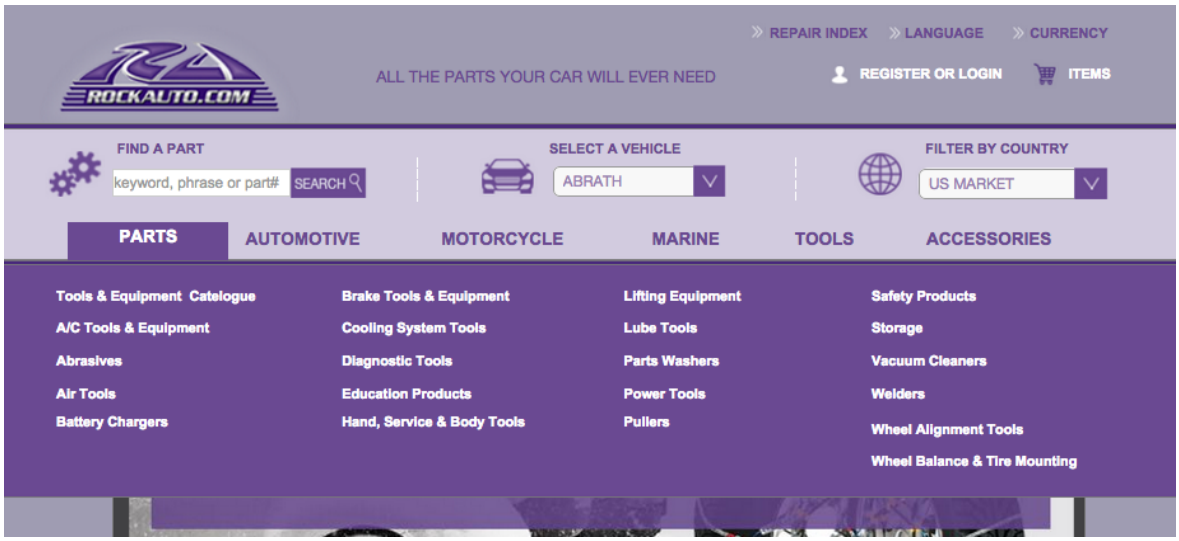


Rockauto.com manufacturers page
fig (13)

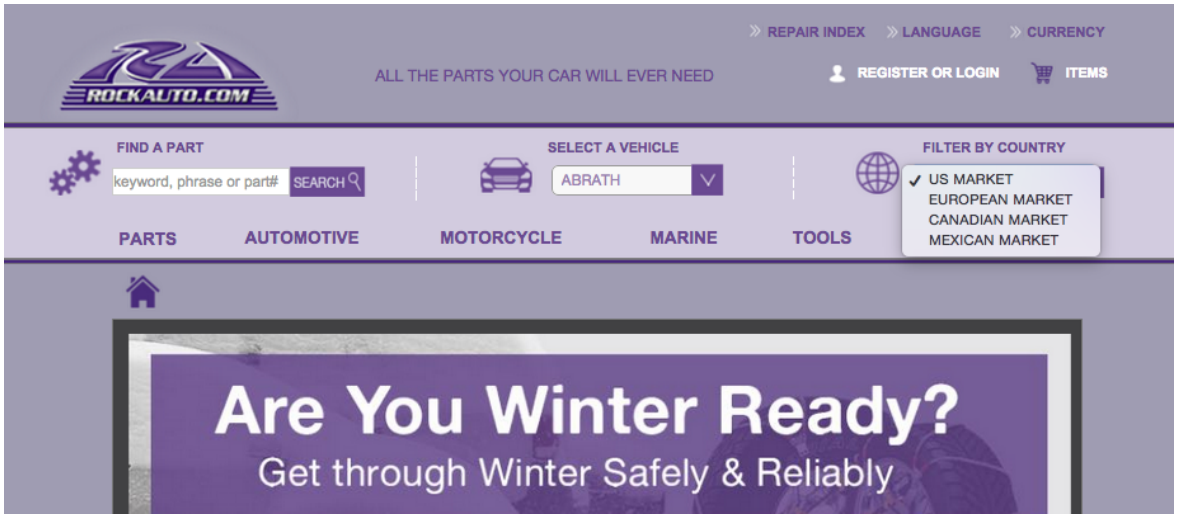


Rockauto.com redesigned home page
fig (14)

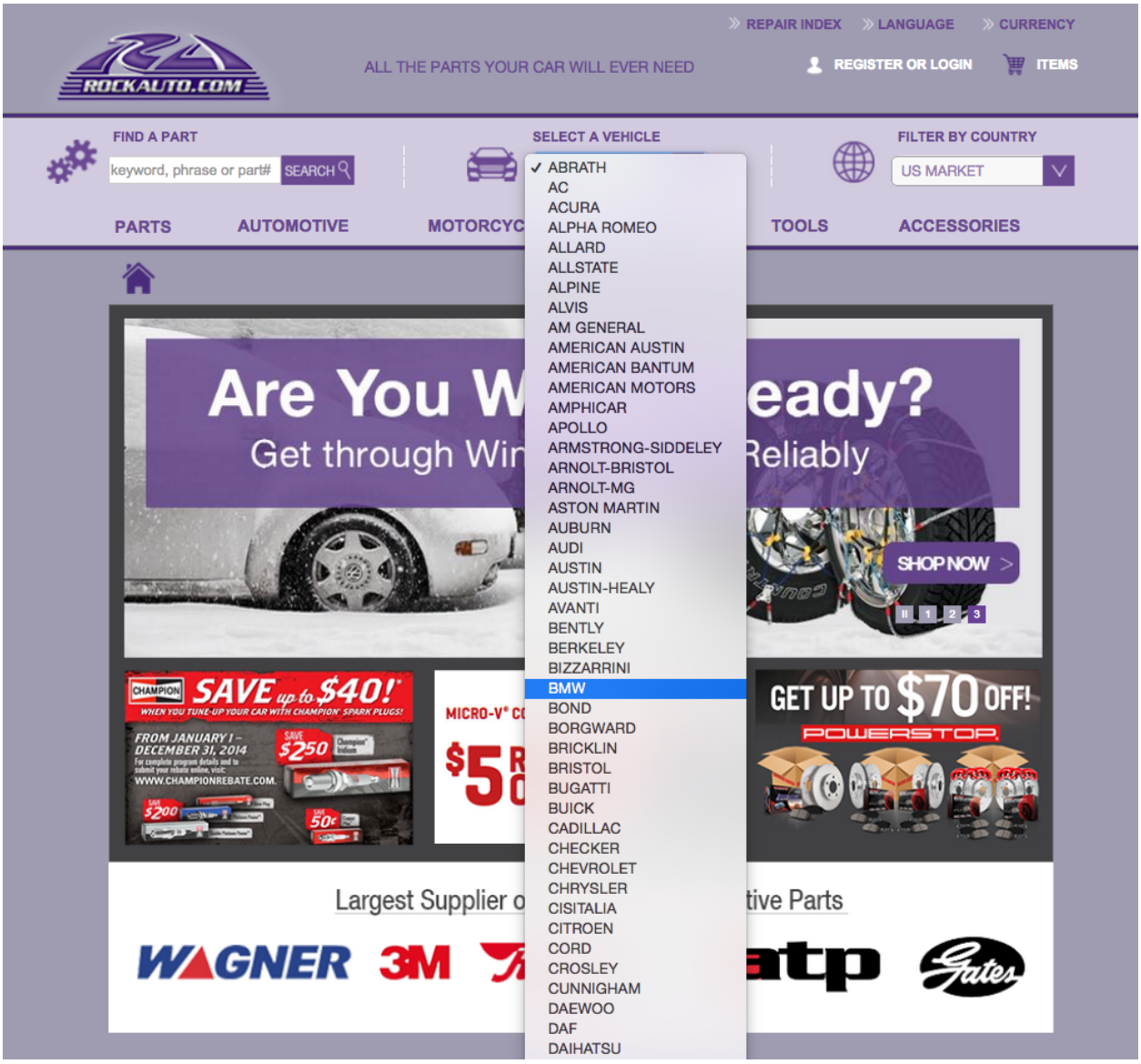
Rockauto.com home
fig (15)



Rockauto.com dropdown menu
fig (16)

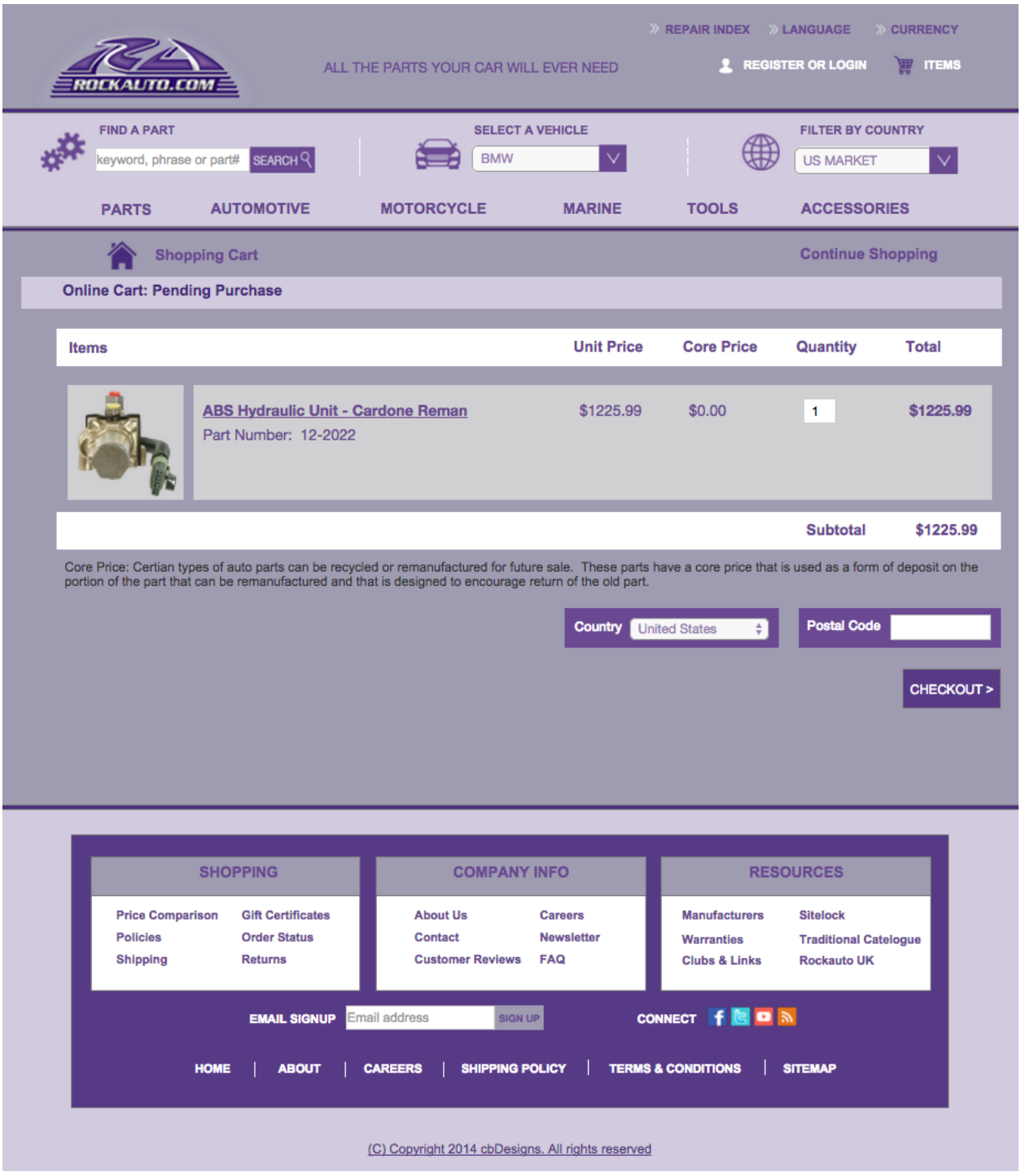


Rockauto.com country filter
fig (17)

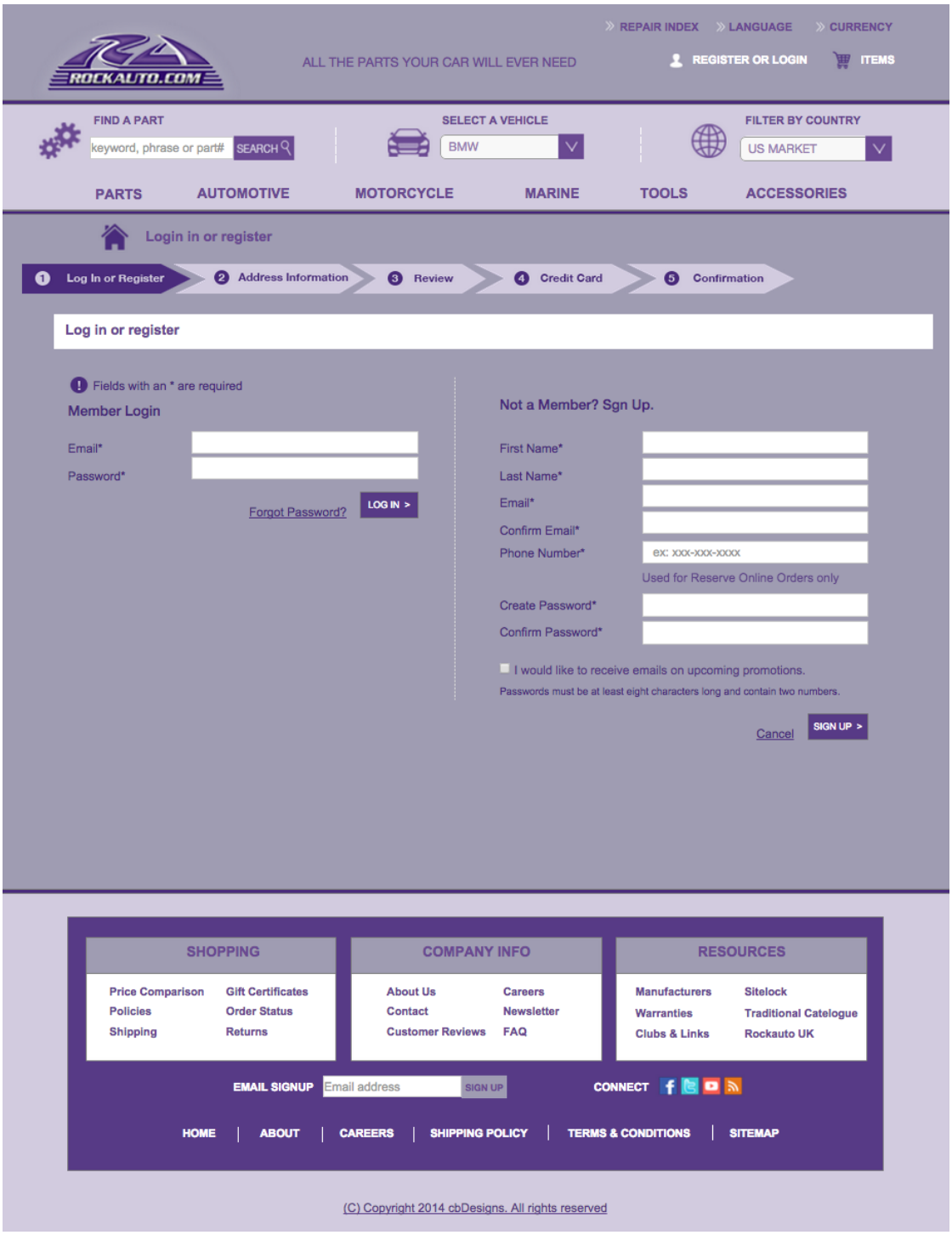


Rockauto.com vehicle filter
fig (18)

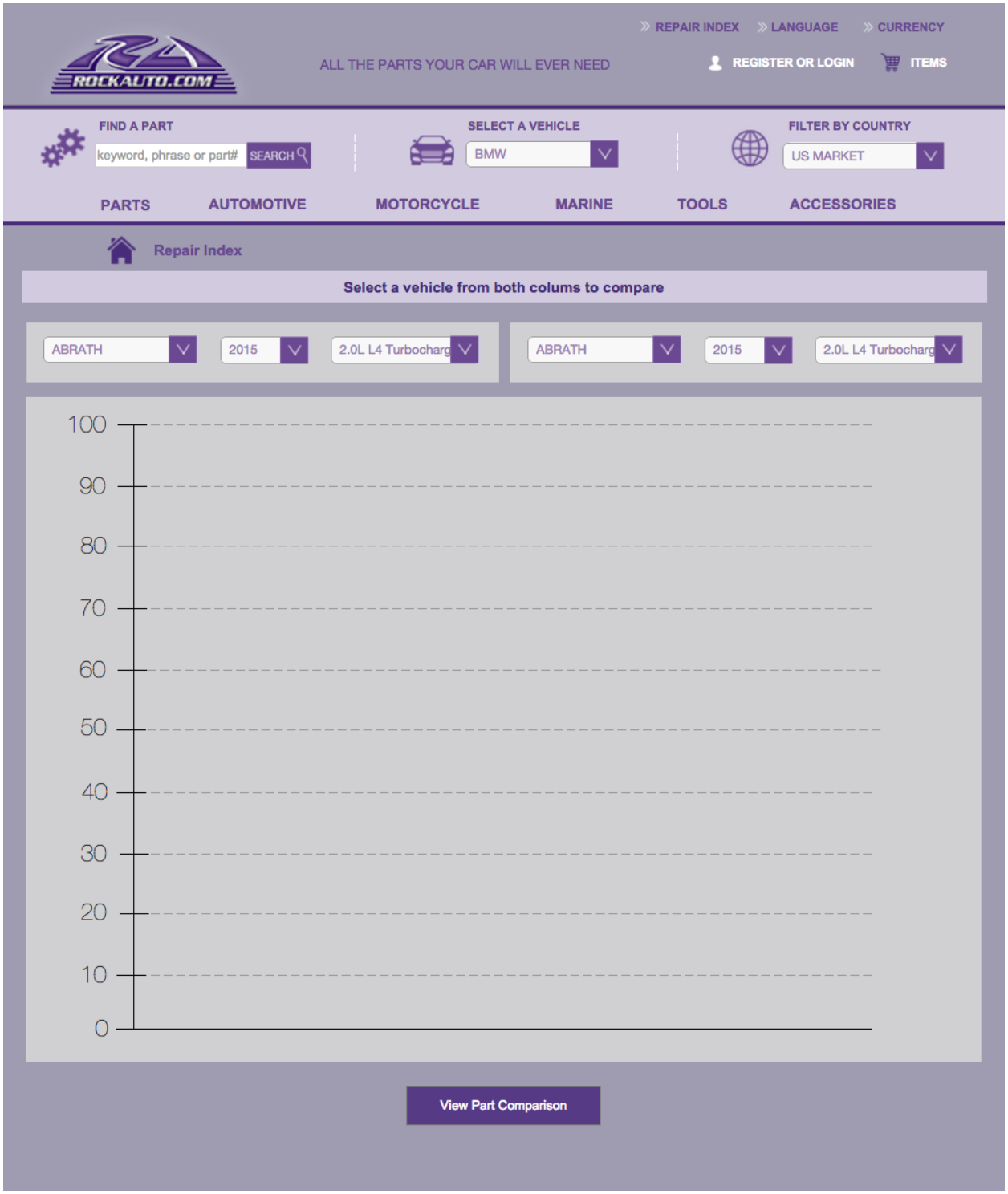
Rockauto.com vehicle selection(catalogue)
fig (19)



Rockauto.com shopping cart
fig (20)

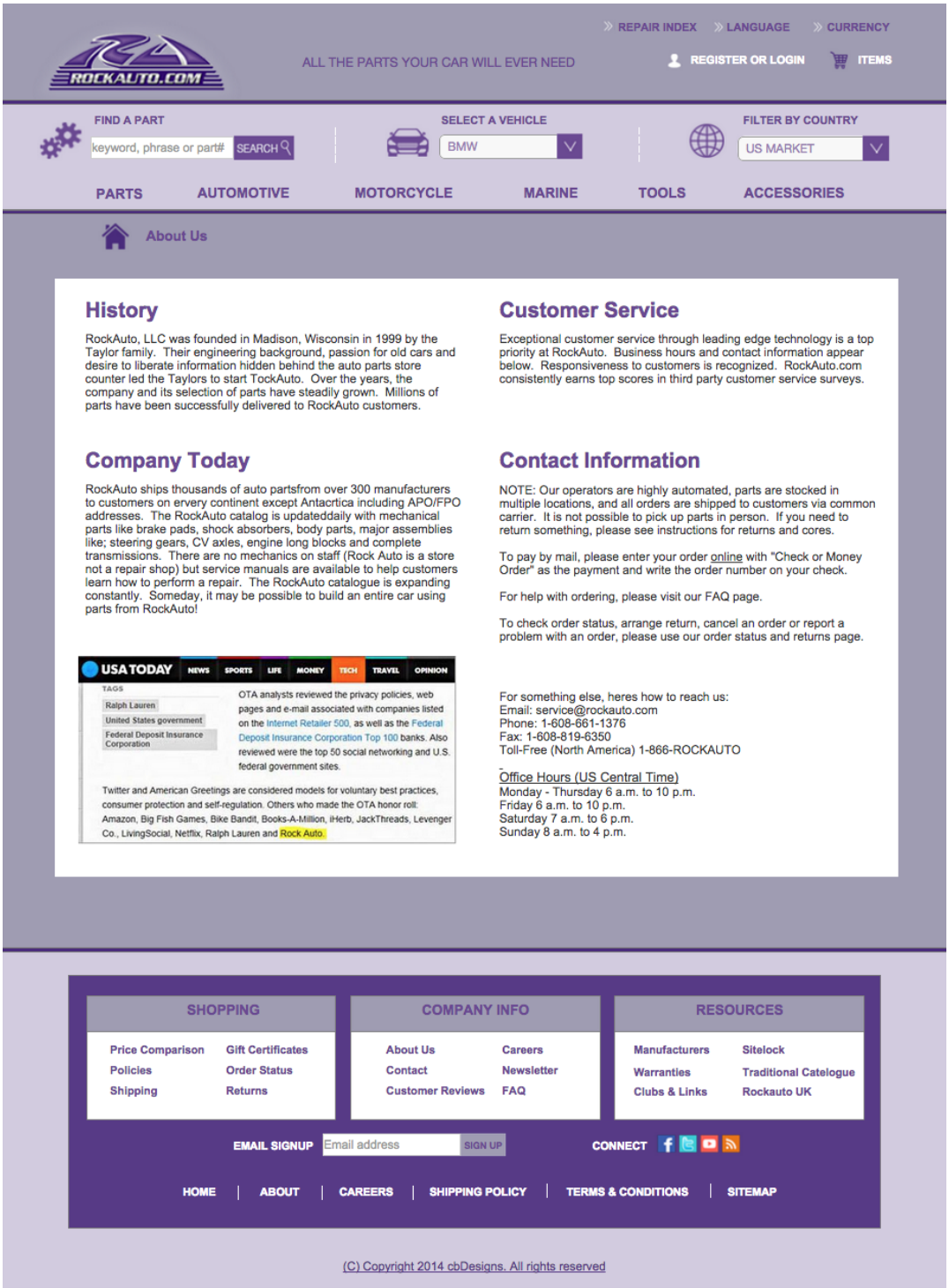


Rockauto.com login/register
fig (21)

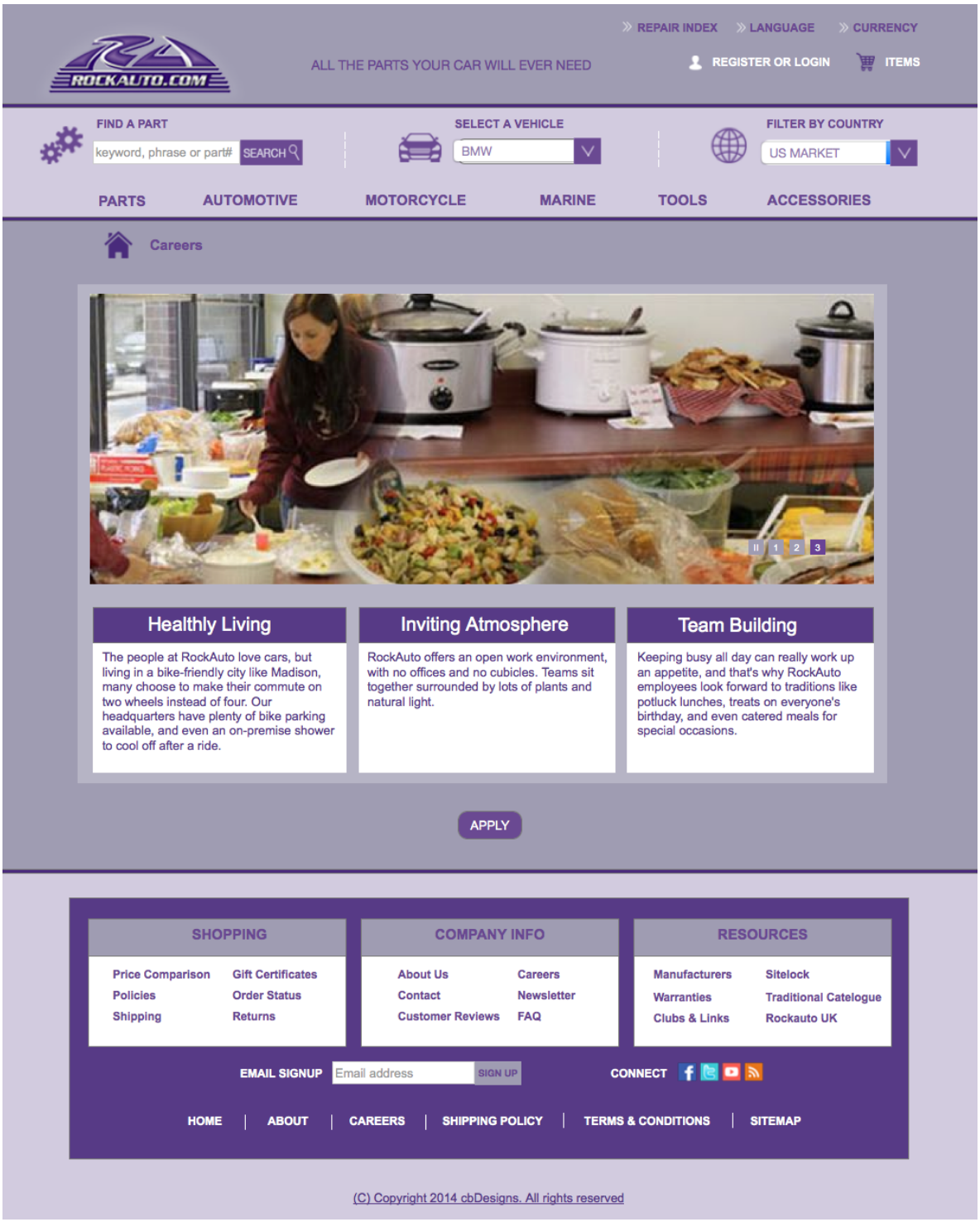


Rockauto.com repair index
fig (22)

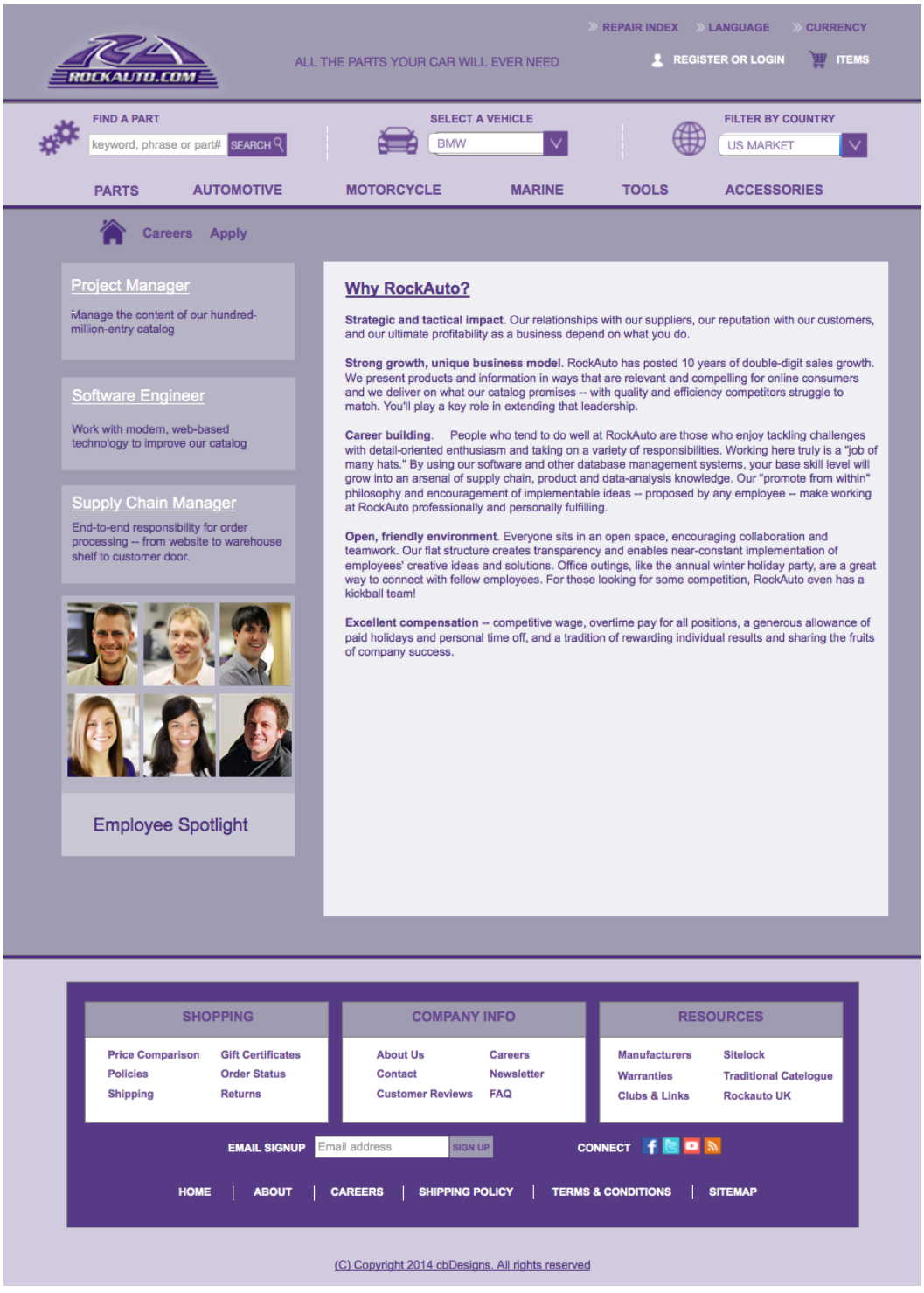
Rockauto.com repair index (selection)
fig (23)



Rockauto.com About
fig (24)

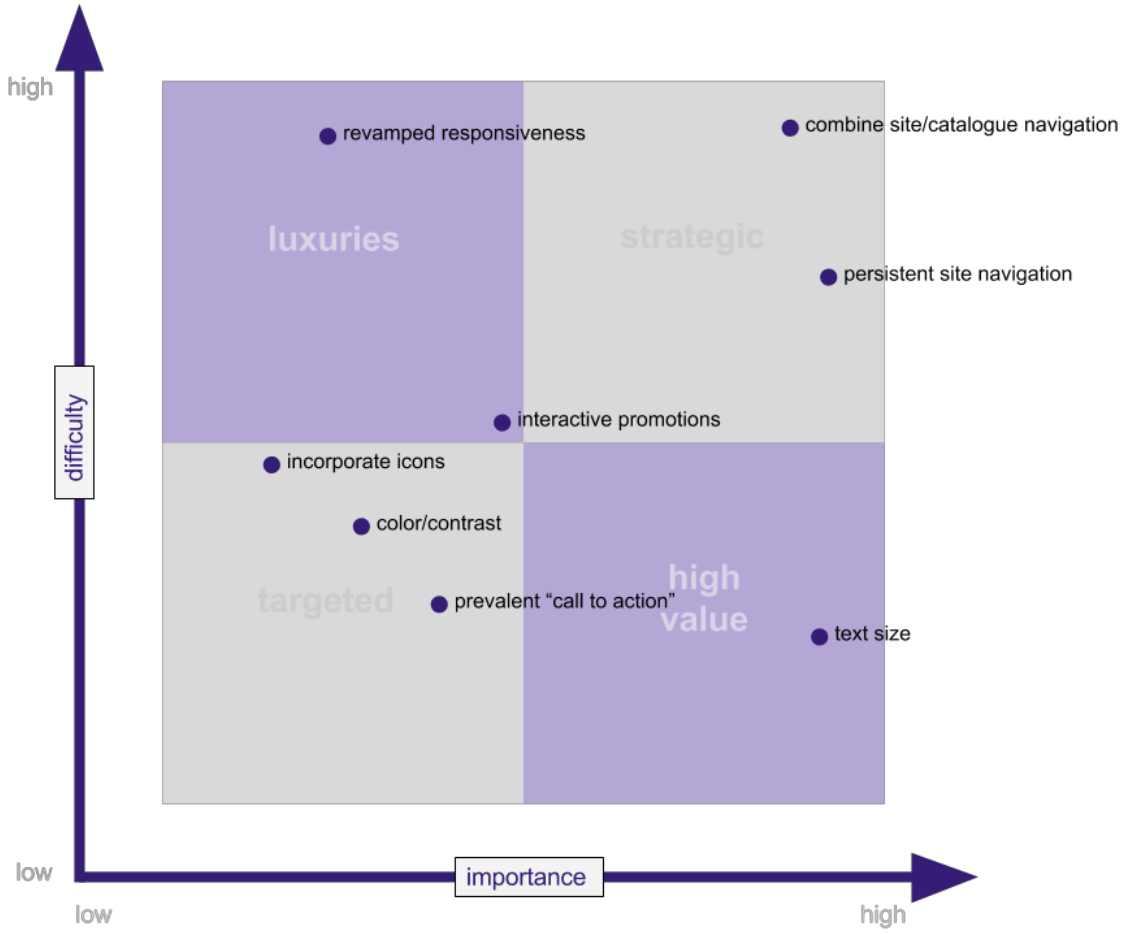


Rockauto.com Careers
fig (25)



Rockauto.com Apply
fig (26)

Cost and Benefit of Fixing Usability Problems



cost/benefit chart
fig (27)

View functional prototype http://createbeautifuldesigns.com/chrisbell/rockauto/home.html