This is the annotated version of the Auction of Tomorrow report document. The PowerPoint slides alone were presented at the NAAA Conference in Palm Springs in November of 2017. The annotations in the notes panes of this PowerPoint were added later, in order to clarify for readers the complete story behind each presented slide. Note that the purpose of the annotations are not to repeat all the words on the slides, only to clarify areas where clarification is needed.

The notes are best viewed by printing the document out in Notes Page format. The slides themselves are best viewed by running Slide Show mode, because there are numerous animations on the slides.

For any questions, corrections, or suggestions for improvements, please contact the author, Glenn Mercer, at auctionoftomorrow@gmail.com

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1. INTRODUCTION

- PROJECT HISTORY: NAAA INSTIGATION AFTER NADA WORK RELEASED
- PROJECT GOAL: PROVIDE THOUGHT-STARTERS FOR MEMBER PLANNING:

  "The central question is: do we need to reinvent the auction?" (Frank Hackett)
- PROJECT APPROACH: 35 MAIN INTERVIEWS, SITE VISITS, DESK RESEARCH
- CREDENTIALS:
  - AUTOMOTIVE INDUSTRY CONSULTING ~30 YEARS
  - AUTOMOTIVE INDUSTRY INVESTING ~10 YEARS
  - PRIOR NADA "DEALERSHIP OF TOMORROW" REPORT

This project was commissioned by the Board and Officers of NAAA in order to assist long-term planning by NAAA members, who had expressed a desire to have a framework within which to better understand the changes that are sweeping over the automotive world. While the goal was always to come up with an accurate forecast for the next ten years or so, we realize that the likelihood of being entirely correct is low. But the real value in this exercise lies in stimulating members to take some time from their busy days, to look forward, and to take actions now that better prepare them for the future. Any member may agree or disagree with any part of this report, but the important thing is to think about the implications for the future. Thus one member might feel that the rate at which auctions are "moving online" is faster than this report asserts – with the implication being to invest more in IT now, in order to keep up. Another member might see that our electric vehicle forecast represents an opportunity, in that an auction might become a specialist in EV reconditioning, by hiring and training techs skilled in that field. In any case, the point is to read, think, discuss, and plan.

Glenn Mercer was chosen as the researcher to carry out this work, based on his credentials and his recent work in a similar vein for NADA, the National Auto Dealers' Association, which led to a report for that group on the future of automotive retailing in the USA, called "Dealership of Tomorrow." Glenn carried out the NAAA work through the Summer and Fall of 2017, basing his findings on some 35 confidential interviews, auction site visits, and extensive desk research (see Chapter 7, End Notes, for the main sources consulted). Every interview was conducted off the record, as by assuring anonymity to participants it was hoped that interviewees would speak more candidly. The interview notes remain with Glenn, and have not been shared with NAAA. Interviewees who were happy to be acknowledged and thanked for their participation are named in the End Notes, but in all cases their words have not been tied to their names, to ensure confidentiality.

2. CONTEXT

- **FOCUS:** USA ONLY, NO SALVAGE, 5-10 YEARS OUT
- **ROLES:** INDUSTRY EXPERTS (YOU!) PROVIDED THE INPUT, INTERPRETATION (AND ERRORS) ARE MY RESPONSIBILITY
- **BIAS:** FROM EXPERIENCE, MANY FORECASTS OVER-SHOOT
- **SPECIAL TOPICS:**
  - THE SAFETY ISSUE IS MAJOR BUT IS BEING ADDRESSED *NOW*
  - I RECOGNIZE THERE ARE ISSUES OF INDUSTRY STRUCTURE AND COMPETITION

NAAA leadership provided scope guidance for this project. Thus, while the insurance or salvage auction industry is important in its own right, for the purposes of this report we focused only on whole-car auctions.

Glenn carried out the work, but throughout this report he asks that readers consider the findings to be the results of a "group project," in that the expertise involved in the people and sources consulted far, far exceeds his own. However, any errors of interpretation are 100% his own.

Auction safety was recognized to be a crucial topic, but it is not dealt with in this report, as there are separate initiatives by NAAA and NAAA members to tackle this crucial issue. We can expect that this issue will be resolved in the near future, so that it will not be a problem for "ten years out."

COMMENTARY FOR THE LAST POINT: "I heard in several interviews concerns about issues of industry structure (i.e. the mix of larger and smaller members) and competitive challenges (e.g. relations with consignors and challenges created by changing fees and costs). While I can appreciate these concerns, it was clear to me that they are best addressed, as always, within the mechanisms of the NAAA, rather than by an external researcher such as myself. Rest assured that these concerns have been relayed to the executive leadership of the NAAA." – Glenn Mercer

In today's environment of suspicion of experts, media, and "fake news," I felt it was crucial to disclose my bias up front. And that bias is that I will tend to adjust estimates of the rate of change expected to "slower speeds." This view is based on two factors. First, the automotive industry has consistently in the last 25 years OVER estimated the rate of change. Examples of this persistent error are shown on the slide. Secondly, forecasts that are based on extrapolation of current trends ignore the reality of "regression to the mean:" the tendency of change to stimulate counter-acting forces that lead to a new equilibrium, not a black-and-white "victory" of one trend over another. Thus for example the rise of AirBnB has taken place even as traditional hotels adapt to its challenge, and are experiencing the highest occupancy rates in recent history. Thus for example the prediction that "e-books" would wipe out paper books has proven false, as after an initial surge in e-book sales consumers have turned increasingly back to paper books. Thus for example the prediction that cars would be wholly aluminum or plastic by now has fallen short, as an energized steel industry has fought back with technological improvements that have protected its share of the car.

The real world is not a sporting event, where one team wins, and another loses, and leaves the stadium. In the real world, attackers and defenders meet, battle it out, and then find a way to co-exist, in a new equilibrium. This report aims to find the new equilibrium for the USA whole-car auction industry.

3. SUMMARY OF FINDINGS

"INSIDE" THE INDUSTRY: MOSTLY STABLE, PROFITS PRESSURED

THE LONG-TERM FLOW OF USED CARS SHOULD BE STABLE

SOURCES AND DESTINATIONS OF CARS WILL SHIFT BUT REMAIN IN TOTAL SOLID

BOTH DIGITAL AND UPSTREAM REMARKETING WILL GROW... SOMEWHAT

AS A RESULT PROFITS MOVE LOWER, CHANGE GOES ON, CONSOLIDATION ADVANCES

"OUTSIDE" THE INDUSTRY: SHIFTS MAY BE POSITIVE, BUT VOLATILE

"THE FOUR HORSEMEN" (AV, EV, MS, CC) ARE NET NEUTRAL TO POSSIBLY POSITIVE

OTHER TOPICS (INT'L, REG/LEG, DISRUPTORS) ARE STABLE, BUT STAY ALERT

NET CONSENSUS: EVOLUTION RATHER THAN REVOLUTION... *FOR NOW*

In this report we looked at forces outside and inside the industry, that could affect it. An example of an inside force is a rental car company: how it decides to remarket its cars will impact the auction industry (e.g. by shifting to upstream retail sales). An example of an outside force is autonomous vehicles (AVs): as they become more plentiful, they may affect auctions to the extent that they are owned by fleets rather than by individuals -- and to the extent auctions as a result deal with more fleet consigners and fewer dealer consigners, this can affect their operations and profitability.

AV = autonomous vehicle; EV = electric vehicle; MS = mobility service (e.g. Lyft); CC = connected car

4. HISTORY: THEMES

THE PAST SHAPES THE FUTURE, AND THEMES FROM YOUR PAST INCLUDE:

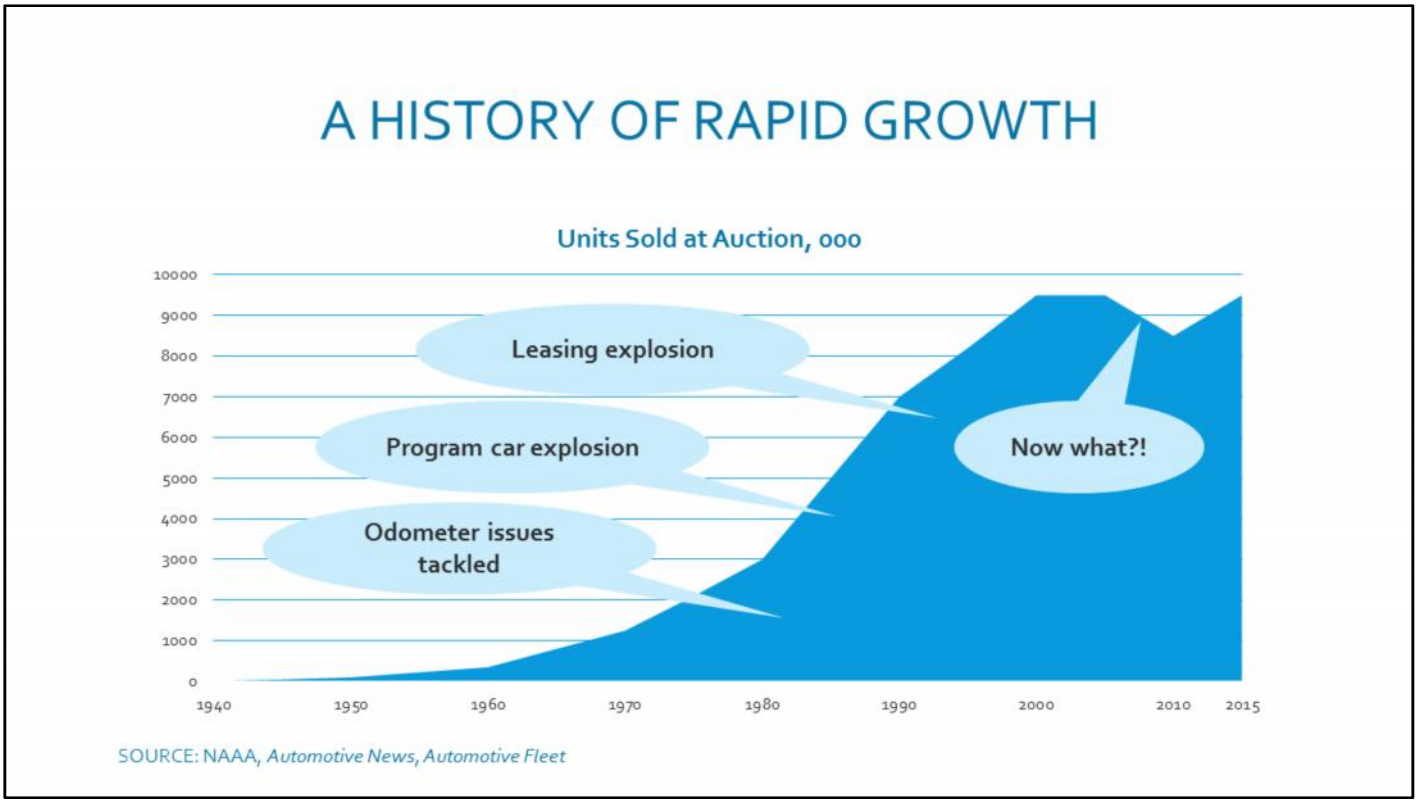
- EFFICIENCY *ALWAYS* IMPROVES
- *EVERYONE* COMPETES WITH AND COLLABORATES WITH EVERYONE ELSE
- *TRUST* (ALL ASPECTS OF IT) IS CORE TO THE AUCTION VALUE PROPOSITION
- "DIGITIZATION" AND UPSTREAM REMARKETING ARE INEXTRICABLY LINKED
- EVERYTHING *CYCLES*: E.G. UP MARKET/UPSTREAM, DOWN MARKET/AUCTION
- *SERVICES* ARE CONTINUALLY ADDED AND UPGRADED
- *AUCTIONS ADAPT ALWAYS*

On the "everything cycles" point: numerous interviewees told me that when the used car market is strong, in an up-cycle, consigners look more to upstream remarketing (as it is easier to execute then); while in a used-car down-cycle, auctions regain share, as only they can move the volume that fleets have to dispose of, when demand for upstreamed products (e.g. from consumers and from dealers) is weaker.

HISTORY: STEADY EVOLUTION

- FROM 10 ACRES TO 100
- FROM ONCE A WEEK TO MORE OFTEN
- FROM MINUTES TO TRANSACT TO SECONDS
- FROM SMALL LOTS TO VAST FLEETS AS WELL
- FROM INDEPENDENTS TO CHAINS AND INDEPENDENTS
- FROM TRANSACTIONS ONLY TO TRANSACTIONS AND SERVICES
- FROM "WILD WEST" TO TRUSTED BUSINESS PARTNER
- FROM PHYSICAL TO PHYSICAL + DIGITAL

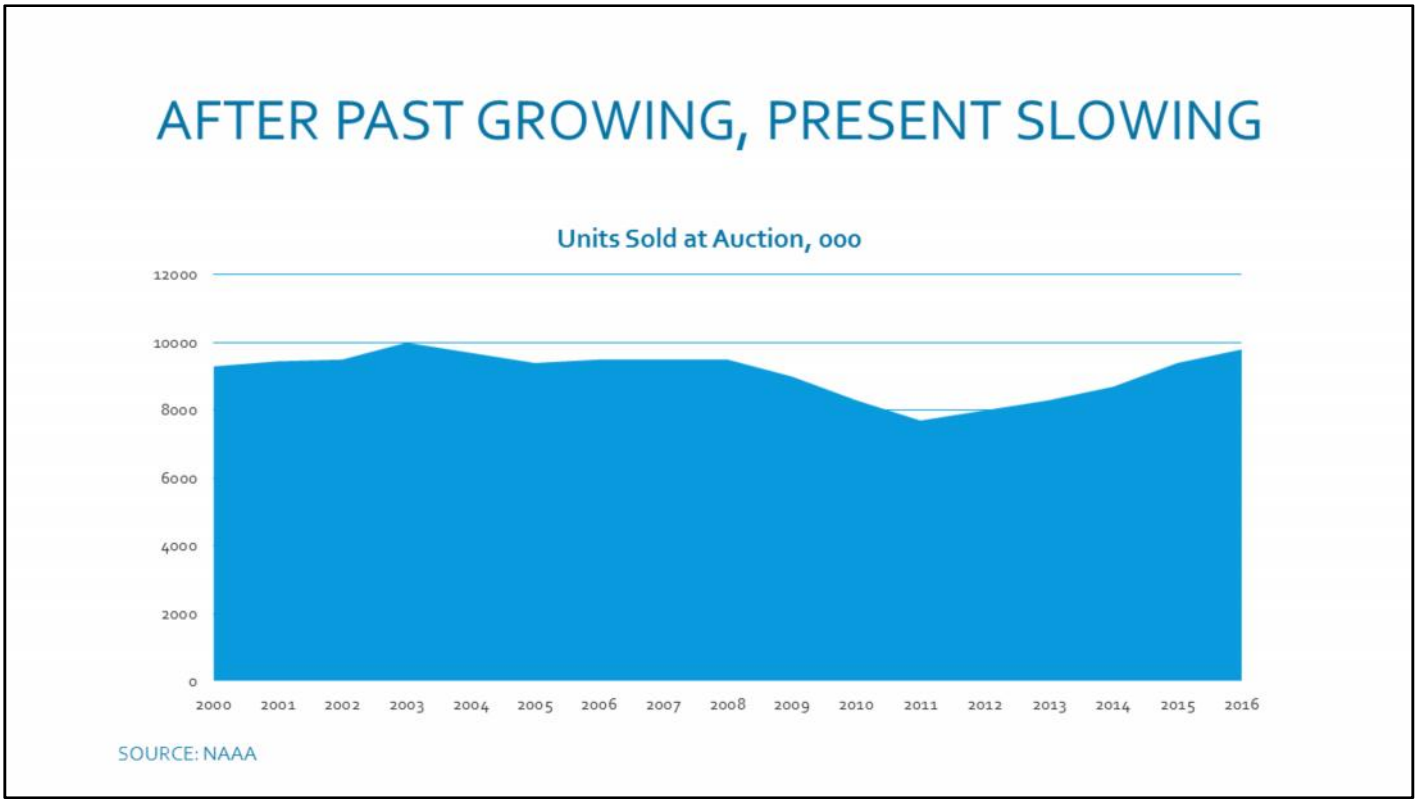
Auctions should not be afraid of a changing future, because their *past* has been marked by steady change. Auctions have so far adapted to change, which provides some confidence that they will continue to be able to adapt.



If we look back over time at the industry, we can see that a long initial period of relative stability, from WWII up until 1980 or so, was followed by an era of explosive growth, from about 1980 through to 2000. Some of the factors driving this expansion include:

1. The industry's conquering of the odometer-tampering problem, which dramatically reduced the risk a buyer would face in using auctions, and so allowed the attraction of many more customers;
2. The launch of so-called "program cars" by the OEMs to stimulate demand, which thanks to their guaranteed buy-back price, reduced the depreciation risk faced by rental-car firms, and so allowed expansion of those businesses, and with that the supply of used cars to auction
3. The leasing boom of the 1990s, also intended by the factories to boost demand, and which generated waves of vehicles which at lease end often entered the remarketing channel.

Since the early 2000s, however – and after the downturn and recovery cycle that followed the Great Recession of 2008 – industry growth has been mostly flat. This has led many industry participants to ask what might happen next. Do we return to rapid growth? Or is this plateau permanent? Questions such as these were part of the motivation for commission the Auction of Tomorrow project.



A closer look at recent years shows the current plateau pretty clearly. We should point out, however, that even in the recent downturn it seemed that most auctions continued to turn a profit (even if at lower levels), thanks to astute management, and to the highly variable nature of many auction operating costs, which meant that if volumes fell costs would fall with them, thus maintaining at least some margin.

5. FUTURE: FINDINGS

FIRST, "INSIDE" THE INDUSTRY

A. **WILL** THERE BE CARS FOR US TO REMARKET?

B. **WHO** WILL BE SELLING AND BUYING?

C. **HOW** WILL THEY BE REMARKETED?

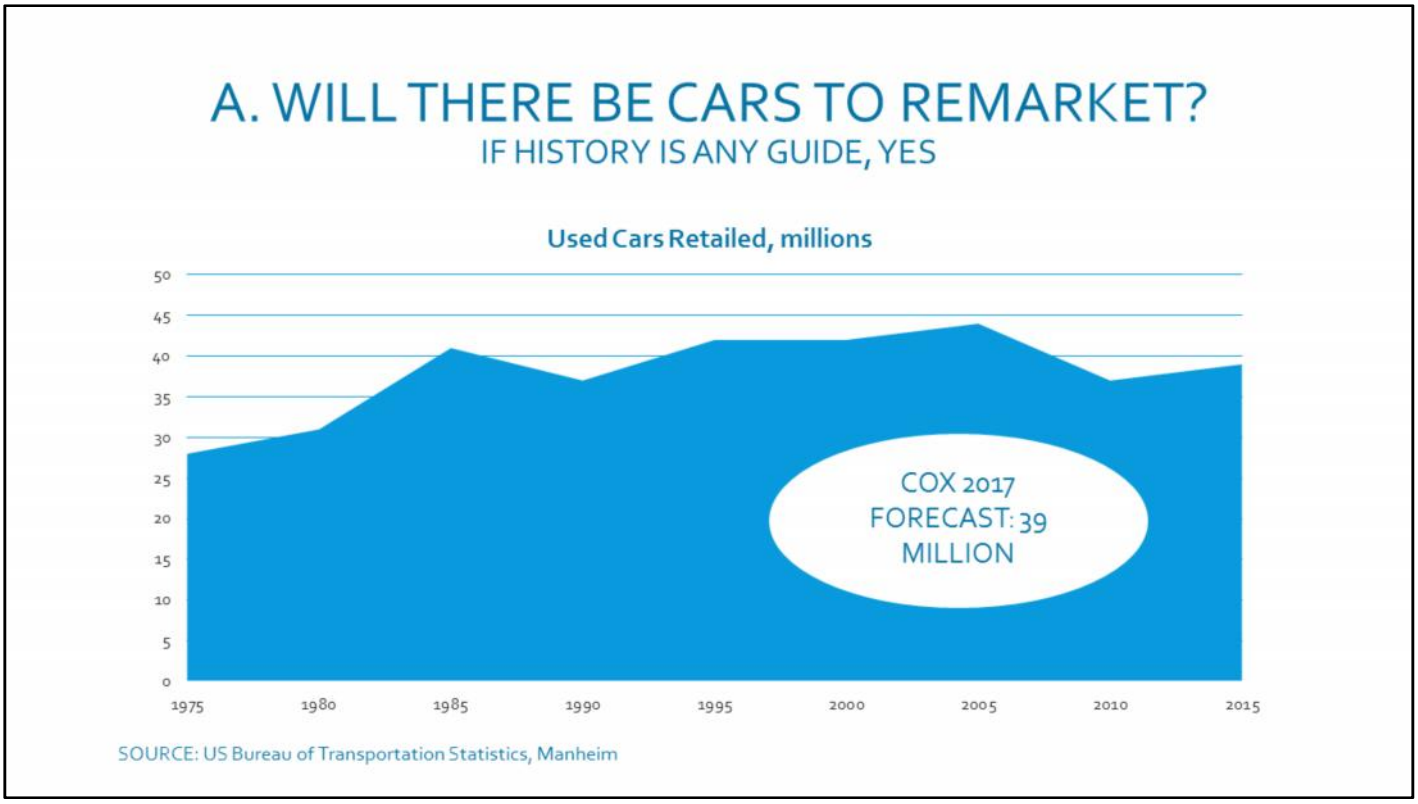
D. **WHAT** ARE THE IMPLICATIONS FOR AUCTIONS?

SECOND, "OUTSIDE" THE INDUSTRY

E. "THE FOUR HORSEMEN OF THE APOCALYPSE" – EV, AV, MS, CC

F. OTHER TOPICS (INTERNATIONAL, REGULATORY, DISRUPTION...)

Now that we have looked at and derived some lessons from our past, it is time to look at the future. In order to make the project's numerous findings more comprehensible, we have divided them into two main chunks, one dealing mostly with developments inside the industry (e.g. who will our buyers and sellers be, how will they remarket cars), and one dealing mostly with external developments (e.g. how will autonomous vehicles impact our industry). We'll take each chunk and its chapters in turn.



The first question to answer about our future must be "Will there be any cars to remarket?" If we look back a few years, we do see a gently but steady upward trend in the gross number of used cars sold in America. The question is, will this trend continue?

DRIVERS OF FUTURE TOTAL U/C VOLUMES

+ NEW CAR SALES STEADY AT +/- 17 MILLION ANNUALLY THROUGH 2025
+ HISTORICALLY STABLE USED CAR VOLUMES AT 35-40 MILLION ANNUALLY
+ GROWING US POPULATION (ABOUT 325 MILLION NOW, 360 BY 2030: +10%)
+ GROWING VMT (VEHICLE MILES TRAVELED: 3.2 TRILLION IN 2016, 3.7 2030)
+ GROWING UIO: IHS HAS 295 MM BY 2023, DARGAY et al. 315 MM BY 2030
- INEVITABILITY OF A RECESSION YEAR OR TWO IN THE NEXT DECADE
- UNCERTAINTY AROUND HOUSEHOLD FORMATION
- IMPACT OF RIDESHARE AND AUTONOMY UNCERTAIN (DISCUSSED LATER)

SOURCE: Numerous, including IHS; CAR; BTS; DOT; Dargay, Gately, Sommer (2007)

Our research tells us that used car volumes will continue to grow. Forecasts of new car sales converge on a steady 17 million sales annually, which of course provide the input for the used-car market. Supporting both new-car sales and used-car usage (and remarketing), we can also see growth in the US population, the number of miles that population drives annually, and the size of the vehicle fleet (which grows not only with population and mileage, but with improving vehicle quality, which allows owners to keep cars on the road longer). (UIO = units in operation)

Of course, we are not predicting a smooth and steady glide path for the next decade: for one thing, there is almost certainly going to be a recession during the forecast period, which will interrupt growth. And there is uncertainty around household formation in the US, which also affects fleet growth. For example, if a family has two children in their 20s, and each goes off to start her or his own household or family, there is demand for more cars. But if the children remain with their parents, there is less demand for separate vehicles.

This positive outlook of course could be disrupted if Americans alter their historic patterns of car ownership and mobility. For example, if rideshare services like Lyft or Uber grow substantially, we may see fewer cars driven more miles, than if every citizen owned their own car. Also, if we see the rise of autonomous vehicles, there may be more cars on the road, as the disabled and elderly use automation to get back on the road. We'll discuss these "outside the industry" factors later on, but holding them aside for now, we forecast slow but steady growth in cars on the road, and thus cars to be remarketed and auctioned.

5. FUTURE: FINDINGS

FIRST, "INSIDE" THE INDUSTRY

A. WILL THERE BE CARS FOR US TO REMARKET? **YES, WITH FLUCTUATIONS**

B. WHO WILL BE SELLING AND BUYING?

C. HOW WILL THEY BE REMARKETED?

D. WHAT ARE THE IMPLICATIONS FOR AUCTIONS?

SECOND, "OUTSIDE" THE INDUSTRY

E. "THE FOUR HORSEMEN OF THE APOCALYPSE" – EV, AV, MS, CC

F. OTHER TOPICS (INTERNATIONAL, REGULATORY, DISRUPTION...)

B. USED CAR SELLERS AND BUYERS

START WITH THE CUSTOMERS: SOURCES AND DESTINATIONS OF CARS

SELLERS:

I. RENTAL
II. LEASE
III. REPOSSESSIONS
IV. C&G FLEET

BUYERS AND SELLERS:

V. DEALERS (NEW/FRANCHISED AND USED/INDEPENDENT)
VI. WHOLESALERS
VII. PERSON-TO-PERSON

So now we are pretty confident that there will be used cars in high volume throughout the next decade. But for the auction industry this answer is inadequate, since different sellers and buyers of these vehicles handle them in different ways. Thus individuals almost never use auctions, whereas repossessed cars almost always go through auctions. To project the future health of the auction industry, therefore, we need to project the future health of all our customer segments. Later, once we have that set, we will project how those segments might use auctions (versus e.g. diverting cars to upstream remarketing).

C&G = commercial and government

I. RENTAL: STABLE/GROWTH @ ~1.5 MM

- OVER TIME RENTAL GROWS FASTER THAN THE ECONOMY, AS WITH MORE GDP THERE IS MORE TRAVEL, AND THIS IS EXPECTED TO CONTINUE:

	1987	2016	Growth
Rental fleet (units)	800,000	2,300,000	2.9 X
US GDP real GDP (trillions)	$8.3	$16.8	2.0 X

- UNIT UPTAKE (AND SO OUTFLOW) HAS GROWN MORE SLOWLY THAN RENTAL ACTIVITY DUE TO LONGER SERVICE PERIODS: HERTZ AVERAGE IN 2005 WAS 11 MONTHS, LAST YEAR 16.* THESE PERIODS CANNOT BE EXTENDED INDEFINITELY.
- CHALLENGE OF MOBILITY SERVICES SO FAR MINIMAL (HERTZ: 4% OF OUR MARKET), AND COMPANIES CAN ADAPT (PAST: AVIS BUYS ZIPCAR; CURRENT: HERTZ RENTS TO UBER DRIVERS; FUTURE: AVIS TO MANAGE WAYMO FLEET)

* Average miles at disposal of risk units: pre-recession 25-35K; since then 35-45K

SOURCE: Federal Reserve; Auto Rental News; Manheim UCMR; Hertz IR

Rental fleets, which consume something likes 1.5 million vehicles annually, seem likely to continue steady growth – although there are issues to monitor, such as whether increasing service lives will reduce their annual purchases (and thus disposals) in the near term, and whether mobility services such as Uber will damage their prospects. So far, both of these issues seem under control.

II. LEASE: CYCLING, BUT UP @ 2-4 MM

- CYCLES UP AND DOWN, AND WILL KEEP CYCLING, BUT LIKELY TO GROW:

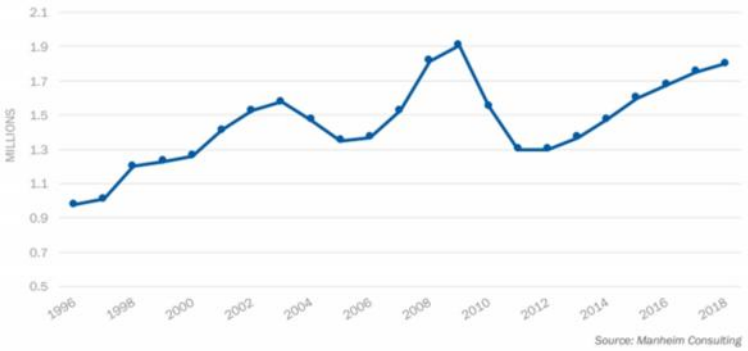
+ AS AMERICA AGES, THE LUXURY/PREMIUM SHARE OF THE MARKET GROWS, AND AS GOES LUXURY SO GOES LEASING... 30% A NEW NORMAL?

+ AS NEW MOBILITY CONCEPTS COME IN LEASING GROWS
  - MORE FLEETS (E.G. UBER) MEANS MORE LEASED VEHICLES
  - ON THE PERSONAL-USE SIDE, MORE COMFORT WITH PARTIAL OWNERSHIP (SEE FOR EXAMPLE CADILLAC "BOOK") IMPLIES MORE LEASING

The volume of leasing in the USA cycles up and down over time, as demand shifts, as interest rates rise and fall, and as vehicle depreciation accelerates and slows. In this report we do not attempt to forecast the penetration of leasing in 2018 or 2019 (there are plenty of experts, some noted at the end of this report, who can do this very well), but to estimate its long-term trajectory. In our view, as the new car market moves ever further up-market, and as OEMs promote new lease-like short-term forms of car ownership and usage, the penetration of leasing is likely to stay high, at 30% of new-car volumes, or even more. And of course, the more off-lease vehicles there are, the more there are for auctions to compete for to remarket. In our view, therefore, off-lease volumes should continue at robust levels, perhaps 2-4 million annually, with lots of variation within that range.

III. REPOSSESSIONS: CYCLICAL @ 1-2 MM

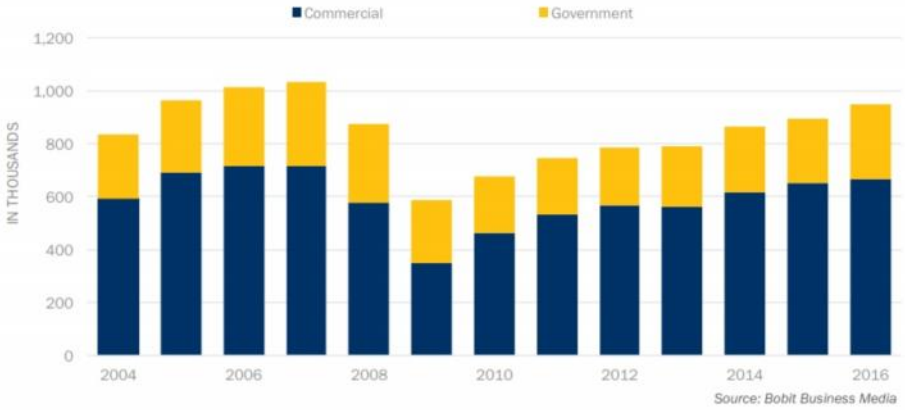
- ALWAYS WITH US ("COMMERCIALLY REASONABLE" RULES): ~80% SHARE
- TEND TO RUN COUNTERCYCLICALLY
- LITTLE UPSTREAMING PRESSURE (BUT OF COURSE CAN BE RETAILED)



Repossessions have always been a reliable source of used cars for auctions, and can even help offset business cycles (as they go up when GDP growth goes down). We see no factors that would significantly reduce – or increase – their volumes over the long run.

IV. COMM'L/GOV'T STEADY @ ~0.9 MM

- GOVERNMENT: STEADY VOLUMES; INTERNAL AND EXTERNAL AUCTIONS
- COMMERCIAL: LARGER BUT MORE VOLATILE, OFTEN USE FLEET MANAGEMENT, MANY SPECIALIZED VOCATIONAL VEHICLES WHICH REMARKET IN DIVERSE WAYS



Commercial and government fleets will always be with us. Their purchasing and selling behaviors can be volatile over time, e.g. as budget cuts affect a given company or government agency, but over the long run their volume is likely to be always present. One twist in this segment is that many of these vehicles are vocational (e.g. EMS trucks, telephone-line "cherry pickers," etc.), which can send them to more specialized remarketing channels. Further, many of these fleets do not interact with remarketers directly, but use intermediaries such as fleet management companies.

V. DEALERS: NEW CAR: CYCLICAL @ 15 MM

FROM NADA "DEALERSHIP OF TOMORROW 2025" PROJECT:

- DEALERS REMAIN DOMINANT NEW-CAR CHANNEL (>90% OF SALES)
- SLOW CONSOLIDATION: 18K TO 16.6K ROOFTOPS, 8K TO 6.5K OWNERS
- PROFITABILITY SOMEWHAT LOWER
- SHIFT FROM NEGOTIATED PRICES CONTINUES (ENABLED BY INTERNET)
- FIXED OPERATIONS (PARTS AND SERVICE) GROW SHARE OF BOTTOM LINE
- INFORMATION TECHNOLOGY A DOUBLE-EDGED SWORD
- BY 2025 DEALERS ARE "PRIVATELY-OWNED COMPANY STORES"
- MAJOR RISK: AUTONOMY AND MOBILITY OVERTURN CAR OWNERSHIP

SOURCE: Mercer/NADA

New-car dealers of course represent the greatest portion of auction consignment. On this slide we fully leverage the findings of NADA's "Dealership of Tomorrow" report for our own view on the outlook for NC dealers, which asserts that they will remain dominant in sales of new cars in the USA, although while facing numerous challenges, and of course with the risk of autonomous rideshare vehicles slashing new-car sales rates (again, to be discussed later). But their scale, persistence, adaptability, and strong financial condition lead us to estimate that they will weather these storms… and thus continue to generate vast quantities of used cars.

(There is a lot of work behind this summary slide: please contact the author for much more detail, if desired.)

UC/INDEPENDENT DEALERS: CYCLICAL @14

- 70,000 ENTITIES WITH SOME INVOLVEMENT, 35,000 WITH >10 CARS/MONTH
- "DEMISE OFTEN PREDICTED, BUT A RELENTLESSLY RESILIENT BUNCH:" RECESSION OF A DECADE AGO KNOCKED OUT NO MORE THAN 5-10%
- HOLDING THEIR OWN: SOLD 16 MILLION IN IN 1995, 15 IN 2016
- NOW THRIVING WITH HIGH OFF-LEASE FLOW, CHEAP AND AVAILABLE CAPITAL
- LOW ENTRY BARRIERS, LOW OPERATING COSTS, LOCAL, SAVVY
- HARD TO CONSOLIDATE: LARGEST RIVAL IS CARMAX AT 675,000 UNITS*
- RISKS: NEW ENTRANTS GAIN GROUND (E.G. TRED, CARVANA); FLOORPLAN FINANCE COLLAPSES (INTEREST RATES RISE, FUNDING DRIES UP IN RECESSION)
- DEDICATED USERS OF AUCTIONS...
- ...BUT (ALONG WITH FRANCHISED DEALERS), TARGETED BY "THE APP CREW"

* Also Drivetime/ Carvana, J D Byrider, Sonic/Echo Park, new AutoNation UC stores; mostly higher-end (e.g. KMX) or BHPH/finance
SOURCE: NIADA; KMX IR; BTS

Used-car dealers in turn represent the major portion of purchasers of auctioned cars. UC dealers are very resilient and competitive, and have actually been gaining ground on their rivals, the UC departments of NC dealerships. In 1990 NC dealers sold 14.7 million used cars, and UC dealers 10.7, such that UC dealers sold 70% as much as NC dealers. By 2015 the numbers were 14.6 and 13.3, such that UC dealers sold 90% as many UC as NC dealers.

UC dealers face their own challenges, from consolidators such as CarMax and "disruptors" such as Carvana, but their flexibility and low costs make them hard to displace. Probably the biggest near-term threat facing UC dealers is their financing: if interest rates go up or finance becomes less available, these thinly-capitalized firms are at risk. But assuming these risks can be managed (as they have in the past), we see UC dealers as still consuming some 14 million UC units annually, with of course wide variations around that number.

VI. WHOLESALERS: ERODE/EVOLVE @? MM

INTERVIEWS ALMOST 100% UNANIMOUS:

- WHOLESALERS PROVIDE VALUABLE SERVICES*
- ... BUT THOSE SERVICES ARE LESS VALUABLE AS DEALERS EVOLVE...
- ... AND IT IS HARDER THAN EVER TO MAKE MONEY ON ARBITRAGE
- ACCORDINGLY, THEIR NUMBERS SHOULD CONTINUE TO DWINDLE (?)

THEIR FUTURE:

- DON'T EXPECT RAPID EXIT: "MANY HAVE VERY *VERY* LOW COSTS; ALSO THE BARRIERS TO ENTRY ARE LOW (E.G. UC MANAGER PRINTS A BUSINESS CARD)."
- WILL THRIVE LONGEST WITH OLDEST CARS, WHOSE NUMBERS ARE GROWING
- AS IS ALWAYS THE CASE, THE MOST EFFICIENT AND NIMBLE WILL SURVIVE
- IN EFFECT "THE APP CREW" ARE THE NEXT STAGE OF WHOLESALER EVOLUTION

- Trustworthy relationships; liquidity for cash-strapped dealer ("Some are banks as much as merchants"); fast transactions; inventory problem-solving for overworked UC managers; sometimes lower costs than auction (especially oldest cars); minimal transport hassle

Wholesalers represented the greatest research challenge to this project, as they are almost impossible to count, and the volume of used cars they handle almost impossible to estimate. The former problem is due to the fact that almost "anyone with a phone and a checkbook" can enter the wholesale business, and the latter problem is due to the fact that wholesalers can enter as both buyers and sellers in multiple transactions for the same vehicle. Thus we can't be sure their numbers are falling (though the consensus was that they are), and we can't provide a reliable estimate as to how much volume they are responsible for. But they are very likely to continue to survive, if not thrive… and in fact some of them may transform themselves into "digital" or "online" or "app-driven" wholesalers, as will be discussed later. And with their continued survival will come a significant – if unknown – volume of used cars that will need remarketing.

VI. WHOLESALERS: ERODE/EVOLVE @? MM

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- AS IS ALWAYS THE CASE, THE MOST EFFICIENT AND NIMBLE WILL SURVIVE
- IN EFFECT "THE APP CREW" ARE THE NEXT STAGE OF WHOLESALER EVOLUTION

"Wholesalers make money on mistakes, and we make fewer every day."

"They have better focus, better brains on UC prices, than UC managers."

"They are huge competitors of ours… AND huge customers!"

"I don't get it: many wholesalers buy a car at one auction, then sell it elsewhere, and make money doing it… theoretically, that's impossible!"

"Okay, but if they go away, who moves these cars?"

- Trustworthy relationships; liquidity for cash-strapped dealer ("Some are banks as much as merchants"); fast transactions; inventory problem-solving for overworked UC managers; sometimes lower costs than auction (especially oldest cars); minimal transport hassle

(Repetition of the page with quotes "bubble" added.)

VII. PERSON/PERSON: VARY @ 10-15 MM

NOT TRADITIONALLY OF INTEREST THOUGH FLOWS ARE LARGE

TRADITIONALLY STEADY: 29% OF U/C TRANSACTIONS IN 1996 AND 2016

BUT AS "WE BUY YOUR CAR" OPTIONS MAY PROLIFERATE, THESE CARS ENTER THE WHOLESALE REMARKETING CHANNEL:

- THE LEADER CARMAX SOURCES 55% AND IS AIMING AT 60-75%: AS OF 2017 KMX HAS DONE 25,000,000 CUSTOMER-CAR APPRAISALS IN TOTAL
- ALSO IN THE GAME ARE KBB INSTANT CASH OFFER, AUTONATION WE'LL BUY YOUR CAR, CARVANA, TRUECAR TRUE CASH OFFER, ETC. (NOT EVEN COUNTING PEER-TO-PEER LIKE TRED, PEDDLE, BEEPI, VROOM...)

NOTE: CARSENSE (NOW WITH PENSKE) BUYS ONLY 5% OF FLEET "OFF THE STREET"

SOURCE: Various ADESA and Manheim reports; press reports; interviews

As noted on the slide, the auction industry has in the past not paid much attention to these purely retail, individual buyers and sellers (with the exception of some retail auction activity on the repo side, etc.). However, the volume they generate is enormous and, more importantly, more of that volume is going not from person to person, but from person to company – such as used-car dealers and the used-car departments of new-car dealers. Each vehicle diverted this way becomes "fair game" for auctions, and so the extent these new buying channels continue to gain ground, more P2P volume may find its way to auctions.

5. FUTURE: FINDINGS

FIRST, "INSIDE" THE INDUSTRY

A. WILL THERE BE CARS FOR US TO REMARKET?

B. WHO WILL BE SELLING AND BUYING? **SHIFTING MIX, STABLE OVERALL**

C. HOW WILL THEY BE REMARKETED?

D. WHAT ARE THE IMPLICATIONS FOR AUCTIONS?

SECOND, "OUTSIDE" THE INDUSTRY

- "THE FOUR HORSEMEN OF THE APOCALYPSE" – EV, AV, MS, CC
- OTHER TOPICS (INTERNATIONAL, REGULATORY, DISRUPTION...)

C. HOW WILL CARS BE REMARKETED?

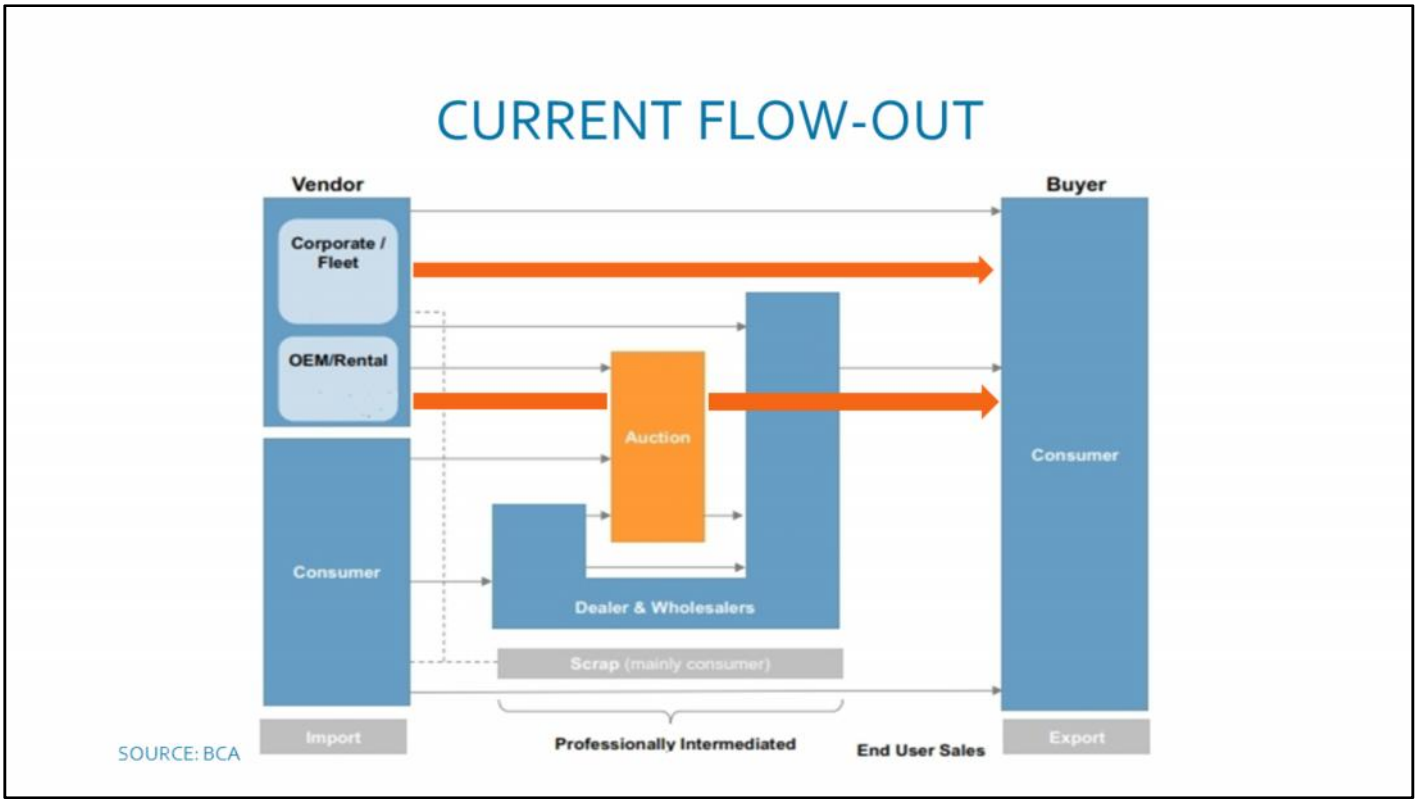
THREE MAJOR SHIFTS...

... WITH THEIR *MAJOR* DIFFERENCES OF OPINION!

1. **DIGITAL ... AKA ONLINE**
2. **UPSTREAM REMARKETING**
3. **"THE APP CREW" (COMBINING 1&2)**

We've projected that total used-car volumes will remain strong. We've projected that the various types of used-car sellers and purchasers will variously gain and lose ground (e.g. repossession volumes may hold steady, while wholesalers may lose some ground). Our next challenge is to see HOW these channels will handle the volumes of used cars they represent: specifically whether they will rely on auctions to the extent they have in the past. Three trends affect the answer to the "how" question: will current UC channels move more volume online (thereby if not disintermediating auctions, probably reducing their revenues), will current UC channels turn to more upstream remarketing (which would indeed further reduce auction participation), and will new UC channels emerge – which will combine both the digital and the upstreaming trend, to the detriment of auction volumes, revenues, and profits? We refer informally in this report to these new channels as "the app crew," as every one of them bases their business model in part or in total on smartphone-enabled software applications, or "apps."

As we will see, the degree to which any of these trends will negatively impact auctions was the subject on which the people we interviewed had the widest differences of opinion. Some felt these trends would be transformative or even devastating, while others saw these trends as "just one more thing to manage."



This chart was provided purely for reference, at a pause in the presentation, to bring the entire audience together on a shared understanding of the industry that will be discussed in the coming pages.

SHIFT 1: DIGITAL* AKA ONLINE GROWS

THERE IS A HUGE RIFT BETWEEN "DIGITAL" AND "PHYSICAL" CAMPS. MOST AGREE **D** IS GROWING, BUT DISAGREE WHERE IT WILL STOP – IF EVER.

DIGITAL CAMP: EFFICIENCY WINS (DOING THINGS RIGHT)

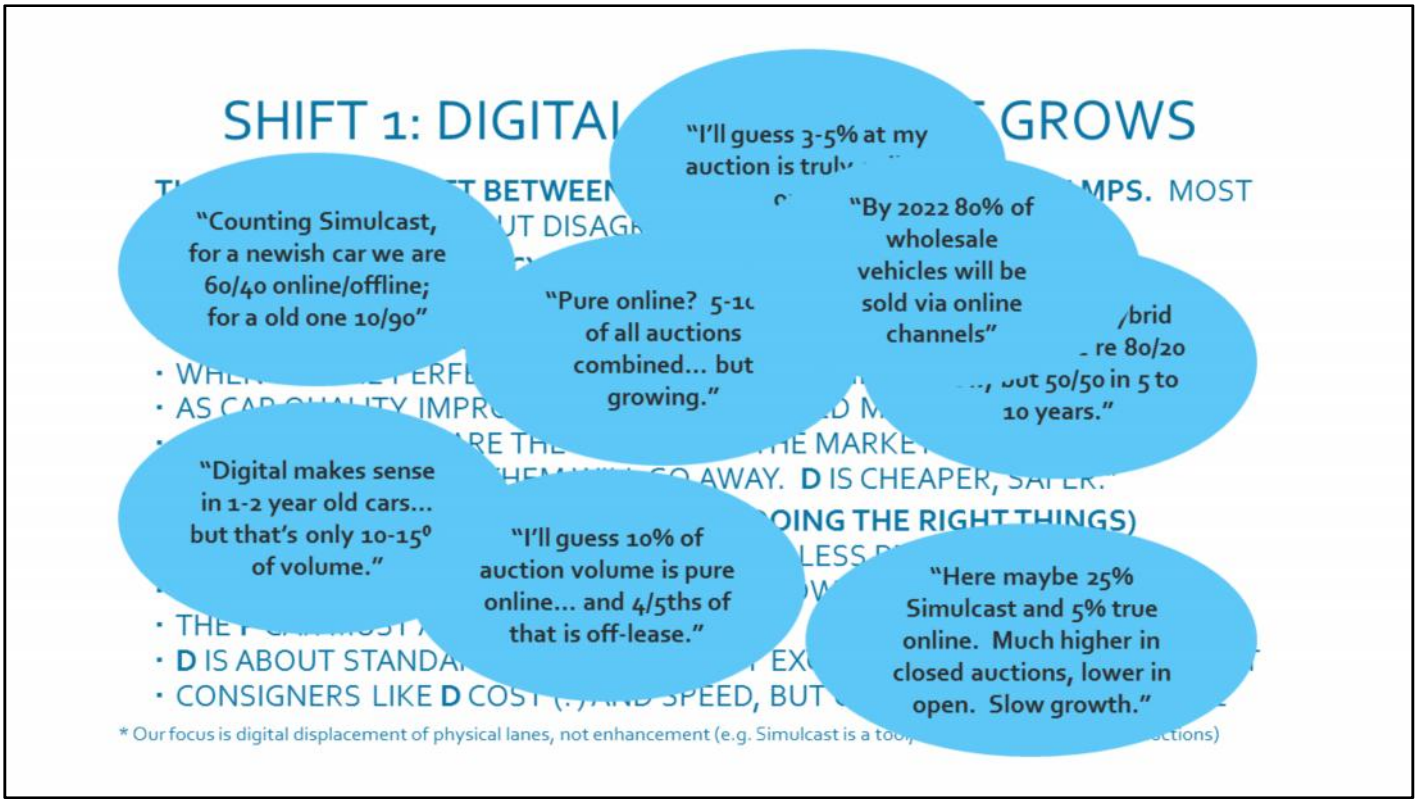
- **D** IS INHERENTLY CHEAPER (E.G. TRANSPORT), WE'LL GET THERE
- **D** IS ALWAYS "ON," NO PARKING UNITS TO WAIT FOR AUCTION DAY
- WHEN CRs ARE PERFECTED THE CONVERSION WILL ACCELERATE
- AS CAR QUALITY IMPROVES MORE OF THE USED MARKET CAN MOVE TO **D**
- AS FLEETS TAKE SHARE THEY WILL PUSH THE MARKET TO **D**
- "LANES AS WE KNOW THEM WILL GO AWAY. **D** IS CHEAPER, SAFER."

PHYSICAL CAMP: EFFECTIVENESS WINS (DOING THE RIGHT THINGS)

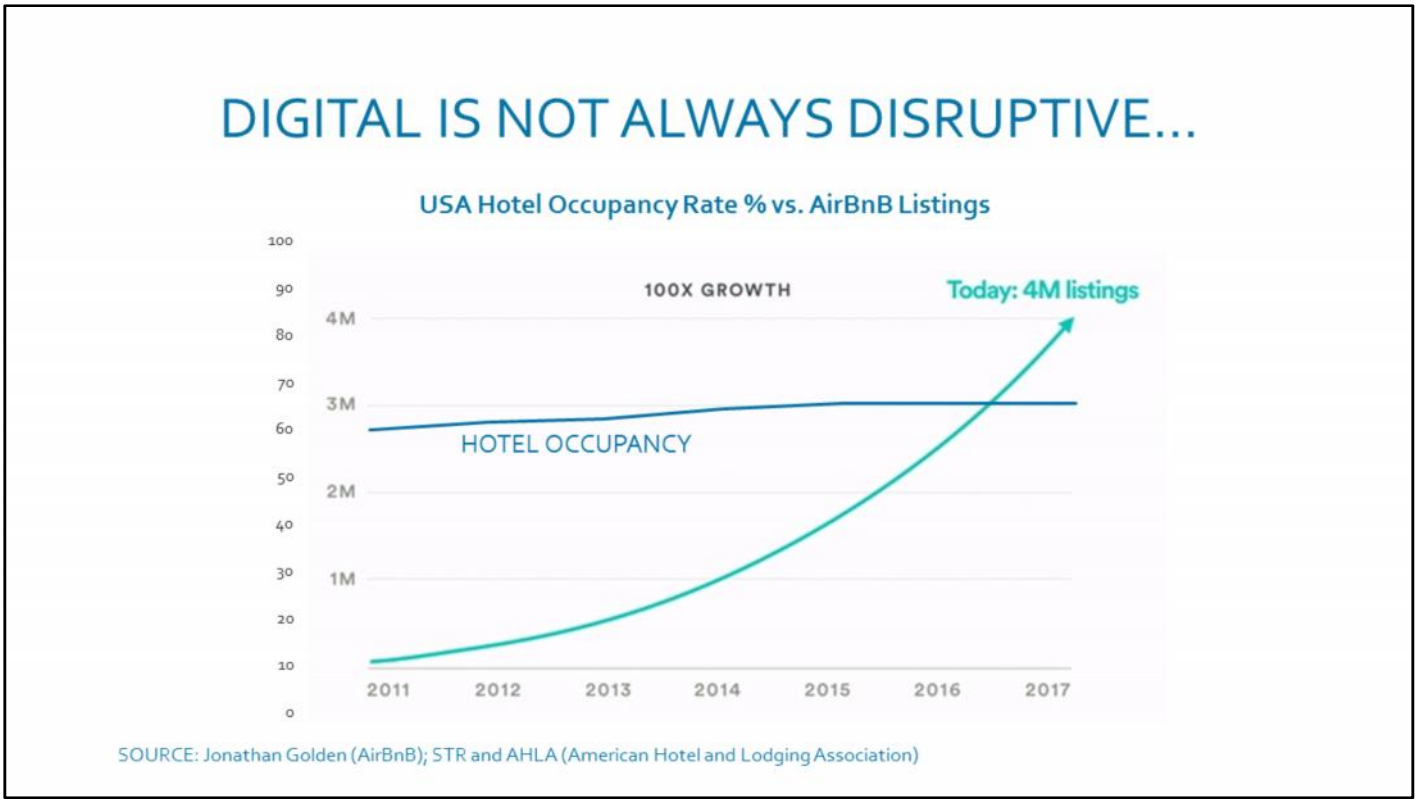
- THERE IS NO EVIDENCE **D** IS CHEAPER (JUST LESS PROFITABLE)
- **D** IS OK FOR NEWER CARS, **P** FOR OLD (A GROWING SEGMENT)
- THE **P** CAR MUST ALWAYS BE DEALT WITH
- **D** IS ABOUT STANDARDIZATION, **P** ABOUT EXCEPTIONS, WHICH WILL PERSIST
- CONSIGNERS LIKE **D** COST (?) AND SPEED, BUT ONLY **P** CAN MOVE VOLUME

* Our focus is digital displacement of physical lanes, not enhancement (e.g. Simulcast is a tool, or supplement to physical auctions)

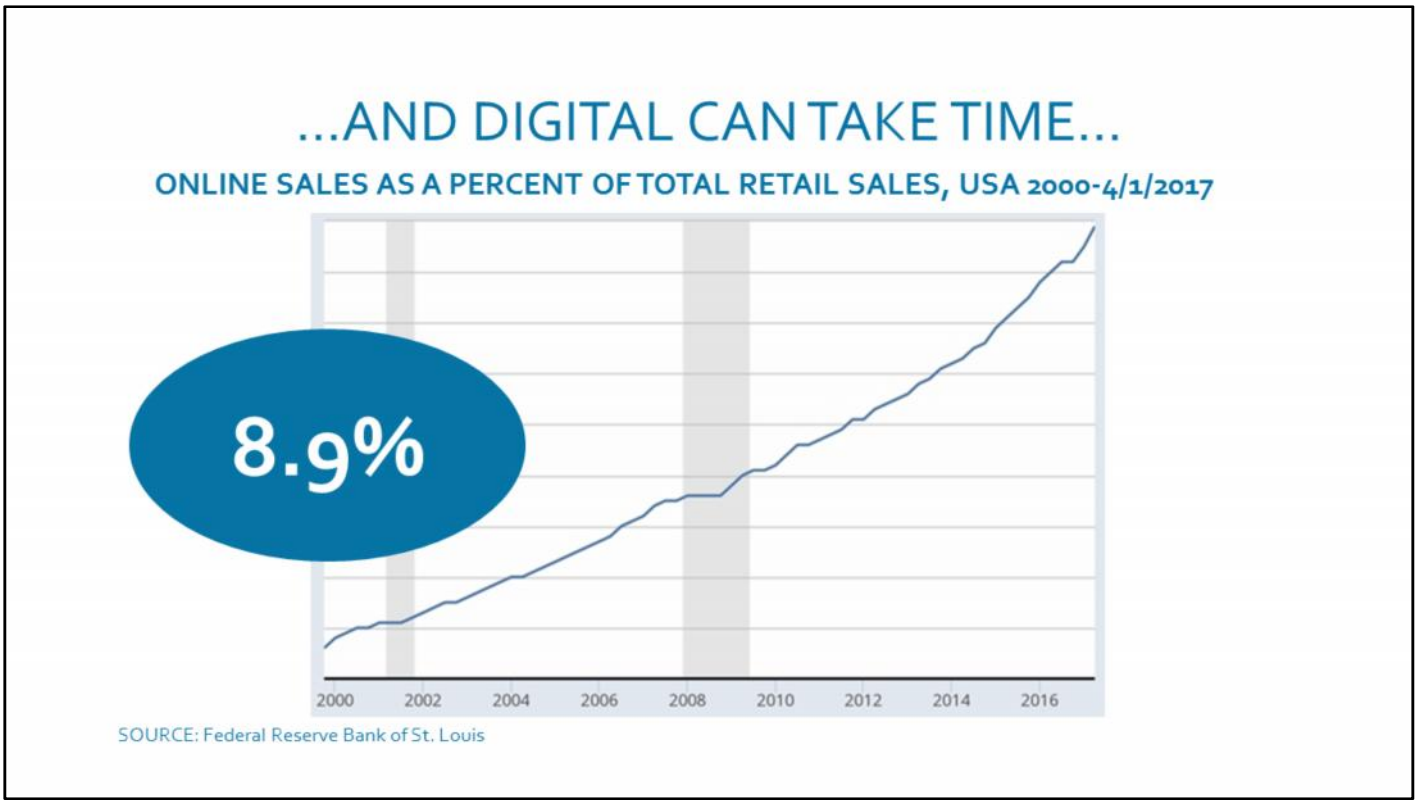
The slide is self-explanatory. The quotes in the ovals are all from interviews conducted for this project. The divergence in opinions is quite pronounced.



(Repetition of the slide with quote bubbles added.)



In this and the next two slides we step back for some perspective. Digital zealots tend to assert that the rise of digital/online equals precisely the fall of analog/offline. And in some cases this has been true: MP3s laid waste to the CD industry. But in more cases there is evidence of complementarity rather than pure displacement: thus we see the traditional US hotel industry racking up historically-high occupancy rates, even as AirBnB listings soar. And recently we have seen AirBnB engage in buying and developing its own hotel properties. An equilibrium maybe reached, where AirBnB becomes more hotel-like (e.g. paying hotel taxes, permitting hosts who develop entire buildings as "AirBnB hotels," etc.) while hotels become more AirBnB-like (developing their own apps, building smaller "homier" facilities, etc.).



Further, auctions may have time to adjust to the rise of digital… which frankly has been around for at least 15 years and which has not been transformative – yet. For example, all the media chatter about online retail destroying physical stores (e.g. shopping malls) fails to note that e-commerce is still less than 10% of all American retail sales. The share is growing rapidly, of course, but there is no clear argument that it must persist – as shown in Amazon's purchase of Whole Foods, which melds together online and offline commerce. The same effect may be true for auctions.

...AND IS NOT ALWAYS INEVITABLE.

THE CASE OF G3 IN THE UK

A DIGITAL/ONLINE LAUNCH...

Established in 2009 as an online vehicle remarketing specialist, G3 has grown to become a well-known independent brand in the digital arena. Its founders felt that the industry was evolving and the demand for more innovative remarketing partners was required. Although physical auctions will remain an integral part of the motor trade, advances in technology and user acceptance now presents a greater opportunity to dispose and purchase vehicles via online auctions

... BUT A MORE PHYSICAL FUTURE:

JANUARY 2016. The company has encountered wider demand for its services. G3's 4 acre headquarters is therefore being redeveloped to make way for a new physical auction hall... for vehicles of up to £5,000 in value. The site will house a viewing auditorium, buyers' lounge ... plus a new vehicle preparation facility and space to store up to 200 vehicles.

APRIL 2016. G3 will introduce a second physical evening sale every Thursday: the goal is to serve trade buyers for vehicles at £1,500 or less...

SOURCE: G3 Remarketing press releases (edited)

Finally, to bring the discussion back to auctions specifically, the digital shift may not be "all one way." This example from the UK shows how one vehicle remarketer, founded to be an entirely digital enterprise, has since then added physical auction facilities, finding that customers simply would *rather have both*, versus just one or the other.

CR'S: A (TEMPORARY) BARRIER?

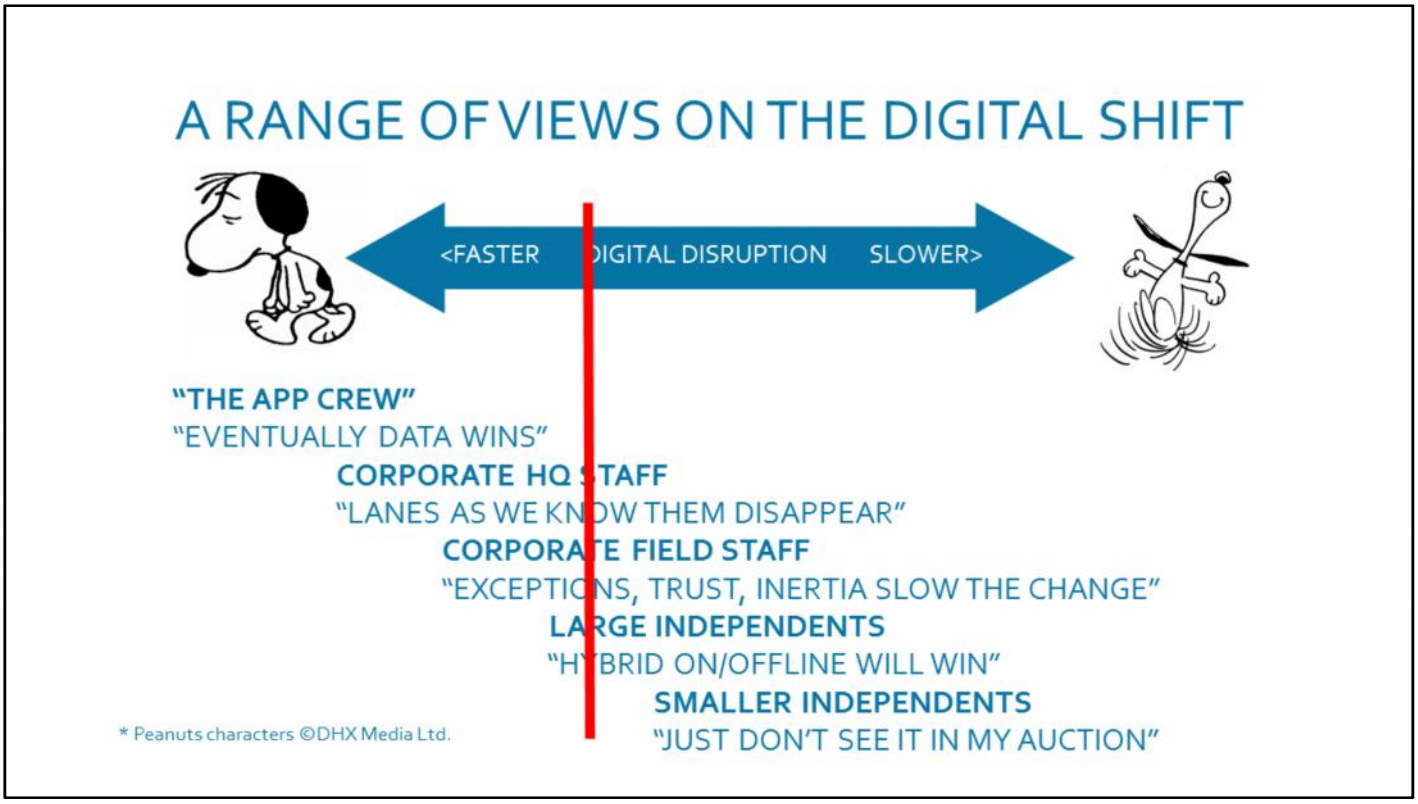
CONSENSUS:

- ONLY WHEN CRs ARE CLOSE TO PERFECT WILL ONLINE BE ABLE TO DOMINATE
- BUT THAT TODAY CRs ARE DISTANT FROM THAT GOAL: "FAR FROM CONSISTENT."

COMMENTS:

- "MUCH IMPROVED: BETTER PHOTOS, STANDARDS, OBDII DATA, EVEN VIDEO."
- "NOTHING MAGIC ABOUT DIGITAL CRs: THEY ARE ONLY AS GOOD AS THE HUMANS CREATING THEM. AND THESE HUMANS ARE OFTEN OVERWORKED, UNDERPAID, AND LACKING THE TOOLS THEY NEED. MORE ONLINE ≠ MORE ACCURATE."
- AS CAR QUALITY IMPROVES CRs ARE EASIER TO EXECUTE, SOMEWHAT.
- "CRs DON'T ADD EFFICIENCY: IN THE LANE THE BUYER DOES THE CR FOR FREE."
- "WE'D LOVE TO FIND A WAY TO AUTOMATE THEM, BUT HOW?"
- "MAYBE 'SMART' CARS CAN SELF-REPORT CONDITION... BUT ONLY UP TO A POINT."
- "LOTS OF ISSUES: A 4 IN NJ IS A 3 IN FLORIDA; PEOPLE TRUST 1,5, BUT NOT 2,3,4"

In any discussion of the digital shift, condition reports (CRs) must be considered. Without virtually perfect CRs, purely digital auctions cannot work, just like a retail online purchase of a shirt cannot go forward if its specifications are "men's large, or maybe medium." CRs are rapidly getting better and better, but to the extent that they rely on human input (beyond videos and OBDII scans, etc.), they remain open to error or at least varying interpretations. (For example, a Vermont car rated 4, with salt marks on the suspension, might receive a 3 in Arizona, where such cosmetic damage is unheard-of.) One's view of the future of digital auctions therefore depends to some extent on one's view of the perfectibility of CRs.



If we lay out the range of opinions graphically, we can see how the industry shakes out. The most aggressive digital innovators, "the app crew," take it as an article of faith that "data wins." Smaller and more remote auctions, dealing mostly with older and cheaper cars, just don't see digital on the horizon. The likely overall result is probably somewhere in between, with continued digital penetration, but at a slower rate than the enthusiasts see, and with spotty patterns of implementation (e.g. large consigners will push for this, small dealers may not see much point). The red line represents the author's best estimate of a middle ground, which as it is to the left of the center of the spectrum, indicates steady inroads by digital; but as it is only slightly to the left of center, that indicates a rather steady and not-too-fast transformation. This deliberate pace should allow auctions some time to adjust (e.g. by spending more on IT), if they see the transformation moving towards them. We are not arguing for complacency, however, but careful monitoring, and planning for action when or if needed.

SHIFT 2: MORE UPSTREAM REMARKETING

CONSENSUS: WILL GROW, WE CAN PARTICIPATE -- BUT AT LOWER MARGINS
DIVERGENCE: HOW MUCH WILL THIS HURT THE AUCTION INDUSTRY?
MOTIVATIONS: "LESS COST, MORE SPEED, MORE CONTROL; HELPS MY NETWORK"
COMMENTARY:

- "UPSTREAMING IS ONLY MADE POSSIBLE BY THE ADVANCEMENTS IN I.T."
- "A FEW BIG PLAYERS MADE THE MISTAKE OF LEAPING TO HELP FLEETS TO DO THIS."
- MANY FLAVORS: FLEETS TO DRIVERS, LESSORS TO DEALERS, RENTAL TO RETAIL...
- "WE GET STILL GET PAID: TO MARSHAL, MOVE, RECON, TITLE ... BUT NOT MUCH"
- THE BIG CHAINS ARE BETTER SUITED TO PARTICIPATE THAN SMALL AUCTIONS.
- "MEANS *MORE* I.T. SPEND, AS FLEETS DEMAND INTERFACES WITH THEIR SYSTEMS."
- "AS A SMALL AUCTION, I NEVER SAW THIS BUSINESS, SO I DON'T MISS IT ANYWAY."
- "SAVINGS ARE ILLUSORY: UPSTREAM=LOWER FEES, BUT LOWER VALUES, TOO*."
- "IT'S REALLY ONLY NEWER CARS... MOSTLY OFF-LEASE."
- "LIKE ALWAYS, WE WILL FIND A BALANCE. WE DON'T KNOW WHERE IT IS THOUGH."

* "It is true that some significant transport costs can be saved."

The debate over the second trend, upstream remarketing, should be clear. With digitization, the argument was over the speed and breadth of the digital transformation. With upstreaming, the debate is more nuanced: how much further will this go, how much will it hurt auction profits, and how likely is it to slow down or even reverse when we (inevitably) move into a down market?

SHIFT 2: MORE UPSTREAM REMARKETING

CONSENSUS: WILL GROW, WE CAN PARTICIPATE … BUT AT LOWER MARGINS

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- "M … S."
- "AS … AY."
- "SAVINGS ARE ILLUSORY: UPSTREAM=LOWER FEES, BUT LOWER VALUES, TOO*."
- "IT'S REALLY ONLY NEWER CARS… MOSTLY OFF-LEASE."
- "LIKE ALWAYS, WE WILL FIND A BALANCE. WE DON'T KNOW WHERE IT IS THOUGH."

"Let's face it: many consigners see auctions as a last resort. A welcome last resort, perhaps, but still the *last* resort."

"Sure, but where else can a consigner go, where they might get *more* than they expected for the car?!"

"To be blunt, when the market is up, upstream works fine; and when it is down … consigners see auctions as their saviors!"

* "It is true that some significant transport costs can be saved."

(Repetition of the slide with quote bubbles added.)

I. RENTAL: UPSTREAM SHARE GROWS

- BIG 3 CONTROL 95% OF FLEET, SO THE CHALLENGE IS TO FORECAST *THREE DECISIONS*, NOT OVERALL TRENDS.
- MOVE FROM PROGRAM TO RISK CARS IS PART OF THE SHIFT (2016 PROGRAM SHARES: HERTZ 20%, AVIS 45%, ENTERPRISE "LESS THAN 5%")*
- MOVE TO UPSTREAM REMARKETING HAS BEEN SIGNIFICANT:
  - HERTZ RISK CARS ~40% TO DEALERS, ~25% RETAIL, ~35% AUCTION.
  - MANHEIM UCMR: 2016 OFF-RENTAL ~50% DEALER, ~10% RETAIL, ~40% AUCTION
- AUCTIONS STILL MANAGE SOME OF THESE FLOWS (AT LOWER MARGINS)
- THE TREND IS NOT LINEAR, THERE WILL BE UP'S AND DOWN'S WITH BUSINESS CYCLES, AND REGIONAL VERSUS NATIONAL VARIATIONS
- A MAJOR RISK: ANY AGGRESSIVE MOVE INTO OWN AUCTIONS (~KMX).

* Auctions traditionally get almost all of program cars, but currently less than half of risk vehicles. The introduction of program cars helped spark the auction boom of the 1980s and onward.

SOURCE: *Auto Rental News*; Hertz; Manheim UCMR; press reports

The rental firms have been aggressive in moving into upstreaming. The hope is that at this time they have achieved a stable balance of options, among sales to dealers, sales to the public, and sales via auctions. The best means auctions have for preserving this balance is of course to provide rental fleets such levels of service and value as to render any further shifts to upstream remarketing unattractive.

I. RENTAL: UPSTREAM SHARE GROWS

"As long as auctions improve efficiency and speed and continue to invest in IT to link with us, we will continue to use them."

"In a way we'd love to avoid auctions – but we cannot. Only they can move the volumes we sometimes need to move."

"If interest rates rise we may accelerate upstream remarketing."

"Let's be honest: when our supply is less than demand, we go it alone; when supply is more than demand, well, the auction is my best friend!"

- A MAJOR RISK: ANY AGGRESSIVE MOVE INTO OWN AUCTIONS (~KMX).

* Auctions traditionally get almost all of program cars, but currently less than half of risk vehicles. The introduction of program cars helped spark the auction boom of the 1980s and onward.

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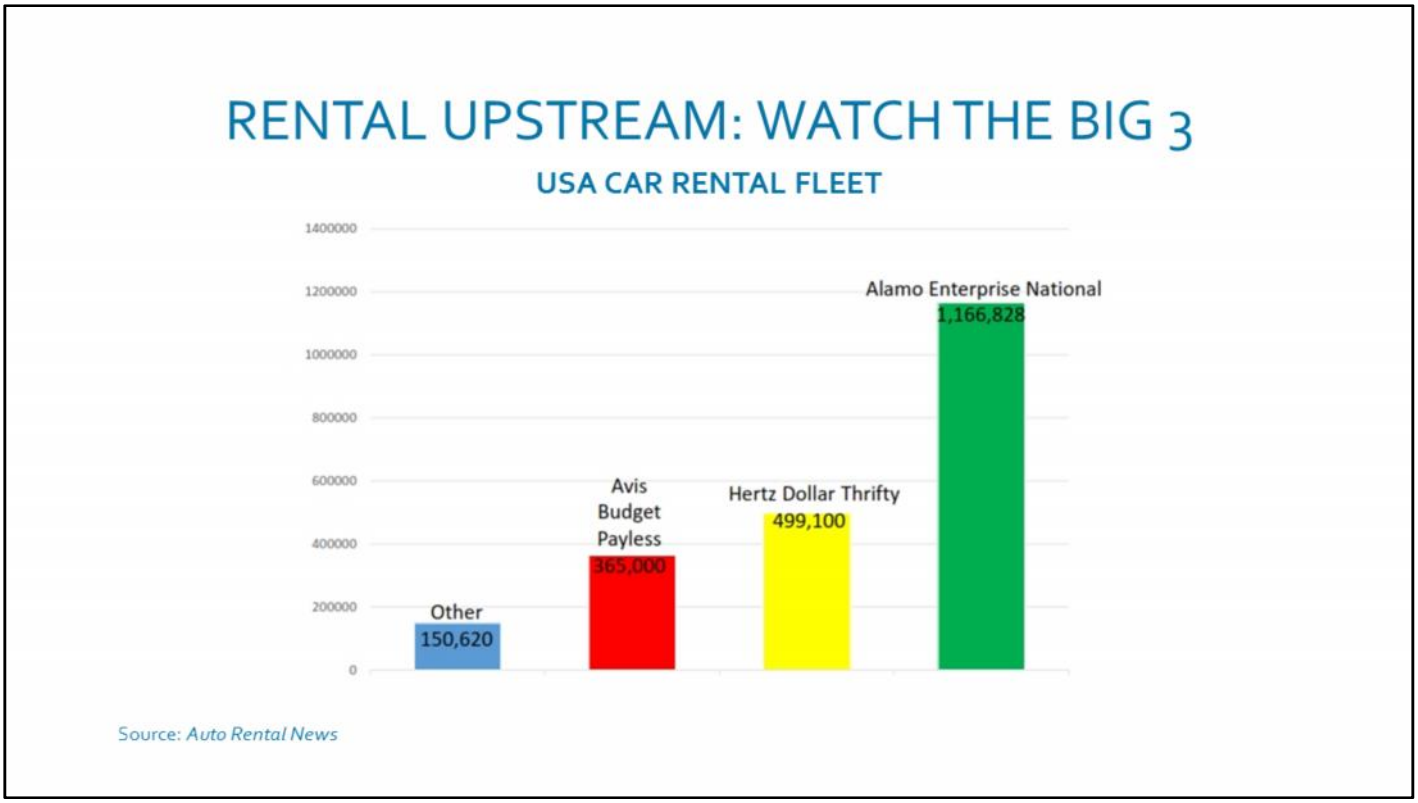
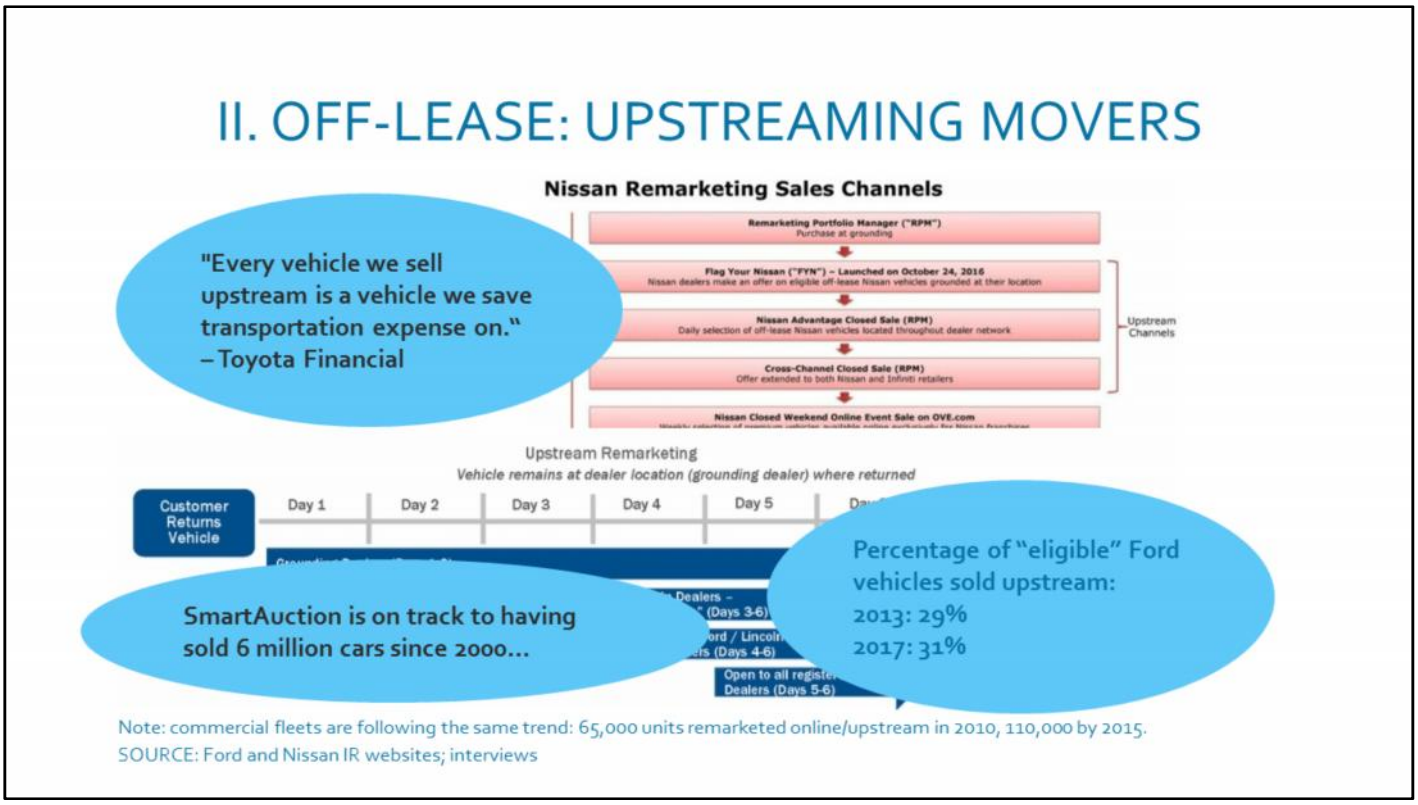


This chart makes the point that to forecast the rate at which rental fleets move to upstreaming, one does not have to look for broad trends – only to track the actions of just three companies… and one in particular.



Off-lease cars have been upstreamed for quite a while of course. And most OEMs are quite candid about their seeing this as the favored path to disposal (rather than going to auction). However, there was some consensus among interviewees that an equilibrium would be found here as well: when demand for CPO cars is high upstreaming makes very good sense… but in a down-market dealers may be more than eager to "get these cars off my lot," and only auctions can manage this at speed and at volume.

V. FRANCHISED DEALERS: UPSTREAMING

- AUCTIONS NOW SEE ONLY 30-50% OF WHOLESALED UNITS (VIEWS VARY)
- LARGE CHAINS CAN DO INTERNAL SWAPS, BUT OPINIONS DIVERGE:
  - LARGE PUBLIC CHAIN X: "WE TRY TO NEVER WHOLESALE"
  - PENSKE RE CARSENSE: ABOUT 80% OF OUR INVENTORY IS FROM AUCTIONS
  - SAVE FEES? SAVE TIME? FAVOR OWN NETWORK. BUT LOWER PRICES?
- TYPICAL DEALER TOO SMALL TO EXECUTE (AVERAGE GROUP ~3 STORES)
  - THUS TURN TO WHOLESALERS (TRADITIONAL), AUCTIONS, "APP CREW"
- SUCCESS OF CARMAX INTERNAL AUCTIONS ATTRACTS ATTENTION*
  - BUT SETTING UP AND RUNNING THESE REQUIRES HEAVY LIFTING
  - SOME CHAINS UTILIZE AUCTIONS TO RUN THESE (E.G. MANHEIM/HENDRICK)

* High sell-through rates (>90%), high margin per vehicle
SOURCE: Press reports; interviews; Manheim UCMR

There has been much discussion recently about new-car dealers trying to "never wholesale" a used car. The view of our interviewees was relatively unflustered by this viewpoint, as it was felt that most dealers did not have the time or talent or infrastructure to manage their own trading network, and that if larger dealer chains did they would still turn to auctions to manage the flow (admittedly at lower margins). However, the singular success of CarMax in this regard reminds everyone to stay alert, as others will try to replicate this model. Certainly it is hard to imagine the NC dealers will be sending *more* of their UC units to auction in the future. On the other hand, it was not so long ago that NC dealers avoided auctions, seeing them as untrustworthy, and auctions managed to prove their value proposition to them then. Continued hard work by auctions to keep NC dealers happy may be able to stem any upstreaming trend.

(Commercial and government fleet auction share seems stable at 55-65%.)

U/C DEALERS: SO FAR, AUCTION RELIANT

NIADA members:	2007	2016
Sourcing vehicles from auctions	75%	> 95%
Consigning vehicles to auctions	65%	90%
Auctions attended per month	<6	>5
Share with auction floorplans	15%	25%

...BUT (ALONG WITH FRANCHISED DEALERS) TARGETED BY "APP CREW"

SOURCE: Various NIADA Used Car Industry reports

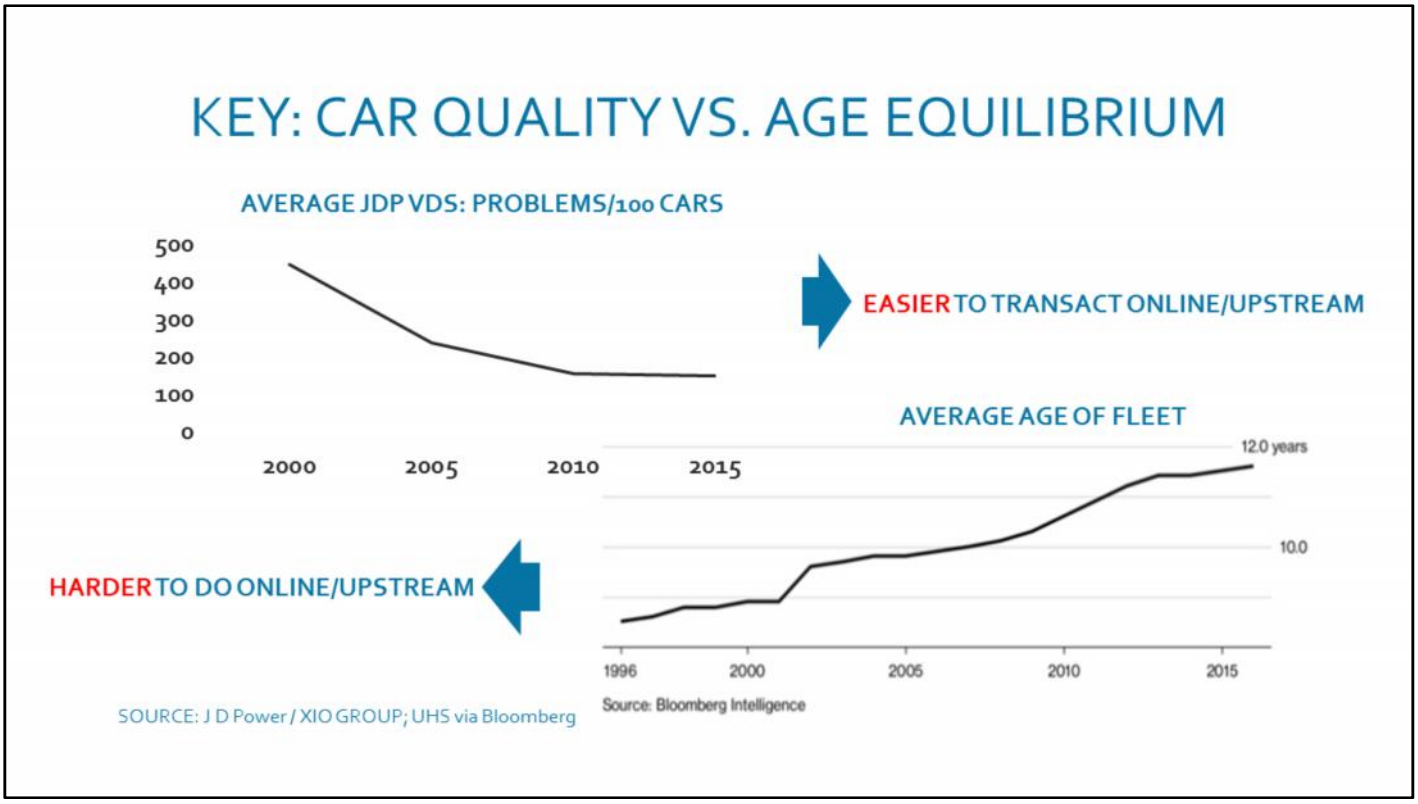
When it comes to the primary purchasers of vehicles at auction, the used-car dealers, we see a clear level of dedication to auctions. In fact, NIADA survey data shows UC dealers making more use of auctions now, than in the past (even if they perhaps attend fewer each month). Some large portion of this shift may be due to the expansion of auction-providing floorplanning lines, which give often under-capitalized UC dealers the funds flow they need to stay in business profitably. But complacency must be kept at bay, especially since the next-generation wholesalers ("the app crew") is definitely targeting the UC dealer market.

VII. PERSON-TO-PERSON

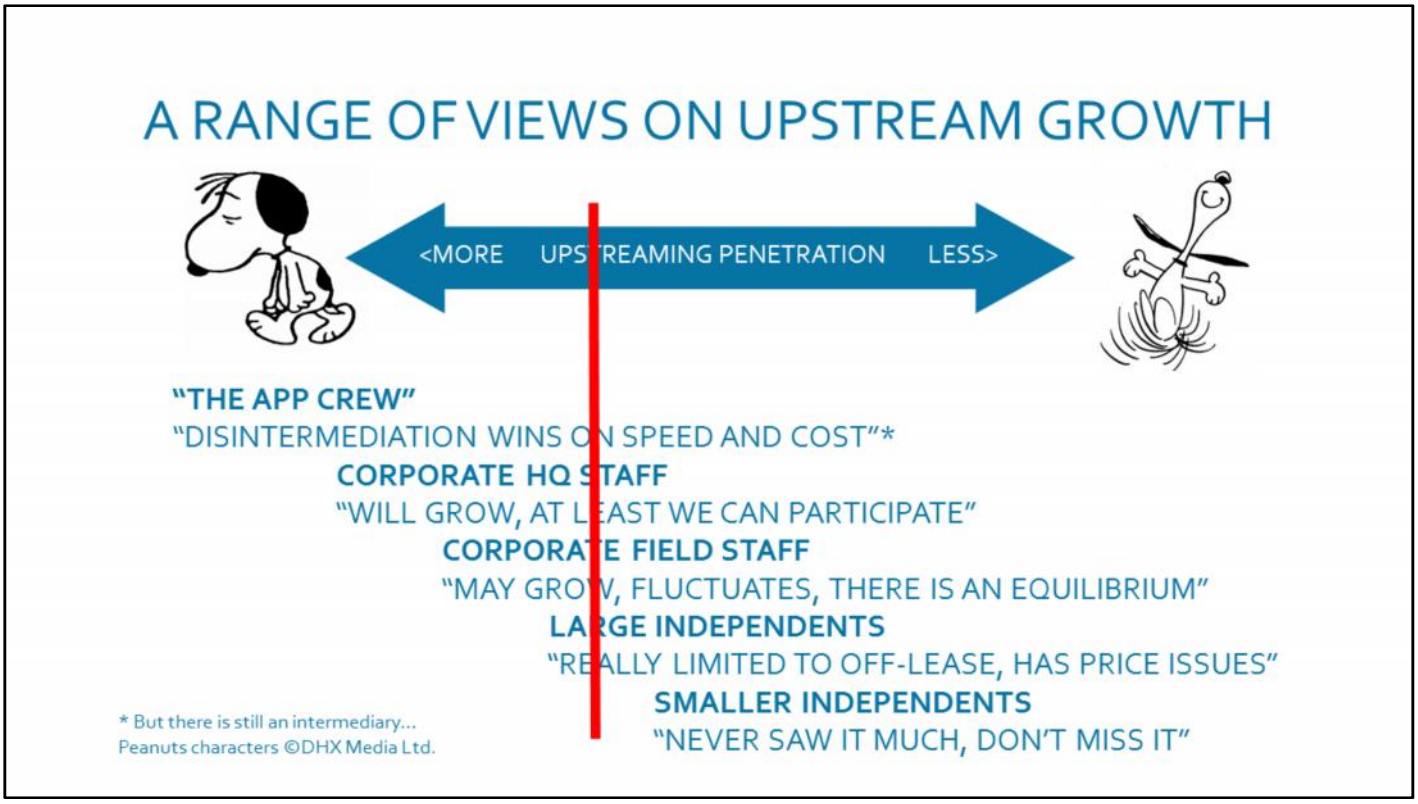
- TRADITIONALLY OF LITTLE INTEREST TO AUCTIONS
- BUT "WE BUY YOUR CAR" INITIATIVES ARE ACCELERATING: KMX SOURCES OVER 50% OF INVENTORY OFF THE STREET, AIMING FOR MORE
- THESE VEHICLES THEN ENTER THE WHOLESALE REMARKETING ARENA
- **BCA: PURCHASE AND AUCTION OF ~200K CARS/YR: VIABLE IN THE US?**

SOURCE: BCA IR; interviews

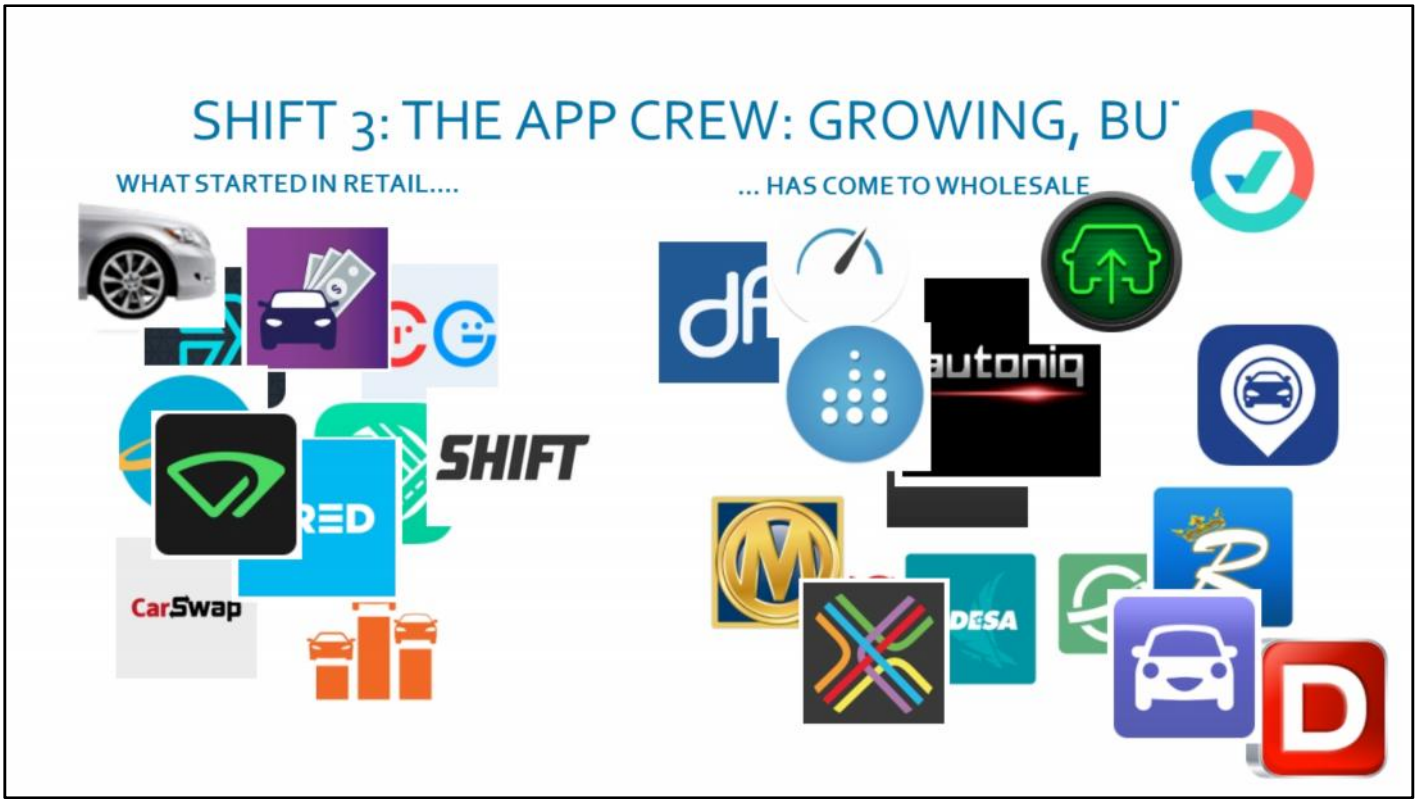
As mentioned earlier, to the extent person-to-person (aka "casual") UC sales shift more and more to "we'll buy your car" offerings from dealers and others, these cars become less "upstreamed" and more "auctionable" – although we cannot be sure of the volumes of these movements yet. In the UK auctioneer BCA has aggressively entered the P2P market, now buying directly (and sending to its own remarketing arm) some 200,000 units a year. Is there a similar opportunity in the USA, or would there be pushback from dealers and other auction customers?



One way of looking at the upstreaming issue is to look at the equilibrium between improving car quality and growing car age. As the OEMs make better and better cars, defects per car fall. This expedites upstreaming, since (for example) a 2-year-old Accord with low mileage is likely to be in a very predictable good condition, making it easier for an OEM's own dealers to bid on it without seeing the car in person. The QUALITY of the recent used car is not much of an issue. But the flip side of improved quality is greater durability, and longer life of the average car. Thus the American fleet is nearing 12 years in average age. This fact retards upstreaming, as now many used cars have been in use for so long that their CONDITION can be an issue (e.g. seat leather wear, exterior paint deterioration, odd interior odors, etc.). Better quality can accelerate upstreaming, but longer life can make condition more variable, and that slows upstreaming. Again, there is probably an equilibrium to be reached, where upstreaming takes a certain share of UC volume, and then goes no further.



So again, with further apologies to Charles Schulz, we have to come up with a balance between upstream remarketing enthusiasts and detractors. As before, where you stand determines what you believe, and so smaller independent auctions who don't see much upstream action, don't believe it is much of a threat. Headquarters staff at larger auctions, who deal with enormous and enormously sophisticated corporate consigners, think about upstreaming all the time, and focus not so much on trying to halt it, as to find a way to participate profitably in the trend. Our own view is shown with another red line, which as with digitization ends up asserting that this trend will persist, but with less speed than zealots might assert. But as with digitization, as upstreaming does proceed, it is hard to see how auction margins are not eroded. If this happens, then the only way to restore bottom-line profitability is by continuing to focus every day and in every way on cost reduction.



Now we come to "the app crew," which depending on your perspective are either just a natural evolution in B2B of smartphone-enabled ventures that are already active in B2C (e.g. Tred, Shift), or a wholly new phenomenon, representing a transformation of the wholesaling industry. (Of course some of these app-based entities are owned and run by auctions themselves: "if you can't beat 'em, join 'em" has been a solid strategy for auctions for many years.) These firms are so diverse, new, and rapidly evolving that it is hard to develop a clear perspective on them, but in the next few pages we will try.

"THE APP CREW:" WHOLESALE EVOLVES

MORE DIGITAL, MORE UPSTREAM

WELCOME TO "WHOLESALER 2.0"!

- FOCUSED ON DEALER-TO-DEALER MARKET (2X THE SIZE OF D-TO-AUCTION)
- ATTACKING D2D DIRECT, TRADITIONAL WHOLESALERS, AUCTIONS
- ENABLED BY SMARTPHONE APPS, ADVANCED IT (E.G. PRICING ALGORITHMS, INVENTORY MANAGEMENT, BUYER/SELLER MATCHING)
- OPERATING ON A NEAR "24/7" BASIS (VERSUS ONCE-A-WEEK AUCTION)
- MOSTLY FOCUSED ON NEWER CARS (LESS CONDITION RISK, EASIER ONLINE)
- WIDELY VARYING BUSINESS MODELS: VIN LOOKUP, BUY/SELL MATCHING, INSPECTION AND CR's, TRANSPORT... SOME TAKE CAPITAL RISK
- "INDIVIDUALLY NO PROBLEM, COLLECTIVELY A CONCERN."

While the slide is self-explanatory, the last point bears repeating: any one of these entities may fold up in the next year or two. But the UC market is so large in the USA that new entrants will continue to pop up, in pursuit of their slice of the pie. So we would advise auctions to look at these firms as a group, and not become complacent because one or another had exited (e.g. Beepi).

"THE APP CREW:" PRO/CON VS. AUCTIONS

PRO

- RAPIDLY GROWING, IMPROVING
- OFTEN WELL FUNDED
- YOUNGER DEALERS COMFORTABLE
- (ALMOST) ALWAYS "ON"
- NO BRICKS & MORTAR = LOW COST (ATTACKER'S ADVANTAGE)

CON

- TRUST ISSUES REMAIN
- "THERE'S STILL A MIDDLEMAN"
- MOSTLY NEWER CARS
- LOW VOLUME SO FAR, NO "BREAKOUT"
- JUST ONE MORE OPTION FOR DEALERS
- "WE NEVER HAD THIS TRADE ANYWAY!"

NEUTRAL

- "AUCTIONS CAN DO THIS" (TRADEREV)
- "AUCTIONS CAN'T DO THIS" (COMPETE)
- AUCTIONS CAN SERVE (AT LOW PROFIT)

Here are the basic arguments about apps. They can move quickly, they are cutting edge, and they have no large brick-and-mortar cost base to drag them down. Conversely, while they advertise they are "cutting out" costly middlemen, they are of course middlemen themselves. And no one of them seems to have gained immense traction – yet. The Appraisal Lane, which was mentioned as a leader by several interviewees, itself announced that in just over the two years of its existence, up to November 2017, it had processed only 100,000 dealer-submitted trades, which is just a drop in the proverbial bucket. On the other hand, it is striking to see the IPOs of both Carvana and CarGurus. Regardless, the key question may be that, if these ventures do gain ground, can auctions fight back effectively? Some would say yes, either by launching their own apps or by buying one out (see ADESA and TradeRev). Others would say no, because auctions will always act to defend their own business model, rather than adapt to something new. My own view is that a middle ground will be found: auctions will individually or collectively come up with their own initiatives, which may be successful, but which will probably cannibalize existing revenue streams, and probably lower profits on average.

5. FUTURE: FINDINGS

FIRST, "INSIDE" THE INDUSTRY

A. WILL THERE BE CARS FOR US TO REMARKET?

B. WHO WILL BE SELLING AND BUYING?

C. HOW WILL THEY BE REMARKETED? ***SOMEWHAT* MORE DIGITAL, UPSTREAM**

D. **WHAT** ARE THE IMPLICATIONS FOR AUCTIONS?

- INDIVIDUAL: ECONOMICS, INDUSTRY:CONSOLIDATION

SECOND, "OUTSIDE" THE INDUSTRY

- "THE FOUR HORSEMEN OF THE APOCALYPSE" – EV, AV, MS, CC
- OTHER TOPICS (INTERNATIONAL, REGULATORY, DISRUPTION...)

IMPLICATIONS 1: SHIFTING ECONOMICS

BASELINE: AUCTIONS HAVE BROADLY RESILIENT ECONOMICS
+ HIGHLY VARIABLE COST STRUCTURE (PERHAPS LESS SO AT LARGER CHAINS)
+ OFFSETTING REVENUE FLOWS (E.G. IN RECESSION SELL RATE CAN RISE)

OUTLOOK: ECONOMICS ARE LIKELY TO SOMEWHAT ERODE OVER TIME
- A SHIFT FROM COMMISSIONS TO (UNBUNDLED) FEES LIKELY LOWERS MARGINS
- AS ONLINE GROWS RATES MAY ROLL OVER FROM "OFFLINE-" TO "ONLINE+"
- UPSTREAM REDUCES VOLUMES AND TRIMS REVENUE ON THE REMAINDER
- "SELL FEES ARE NEVER GOING UP AND WE CAN'T RAISE BUY FEES ANY FURTHER."
- "THE APP CREW" HAS A FUNDAMENTALLY LOWER COST BASE ("NO ASPHALT")
- IF YOU BELIEVE THAT FLEET VOLUME GROWS (DEALER CHAINS, MS, ETC.), THEN CONSIGNER BARGAINING POWER ALSO GROWS (THOUGH WITH HIGHER VOLUMES)
+ ADDING AND IMPROVING SERVICE OFFERINGS CAN CLAW BACK PROFITS
+ I.T.-DRIVEN EFFICIENCIES CAN REDUCE COST AND SO ALSO RESTORE PROFITS

Before we move on to the "outside" threats and opportunities the auction industry faces, let's wrap up our review on the "inside" factors, with the implications they have for auctions. First we'll look at economics. As the slide discusses, if no strong actions are taken (e.g. introduction of better and more profitable service offerings), auctions' bottom line profits in a decade are likely to be somewhat lower, although we cannot be sure how much lower.

IMPLICATIONS 2: CONSOLIDATION

CONSENSUS:

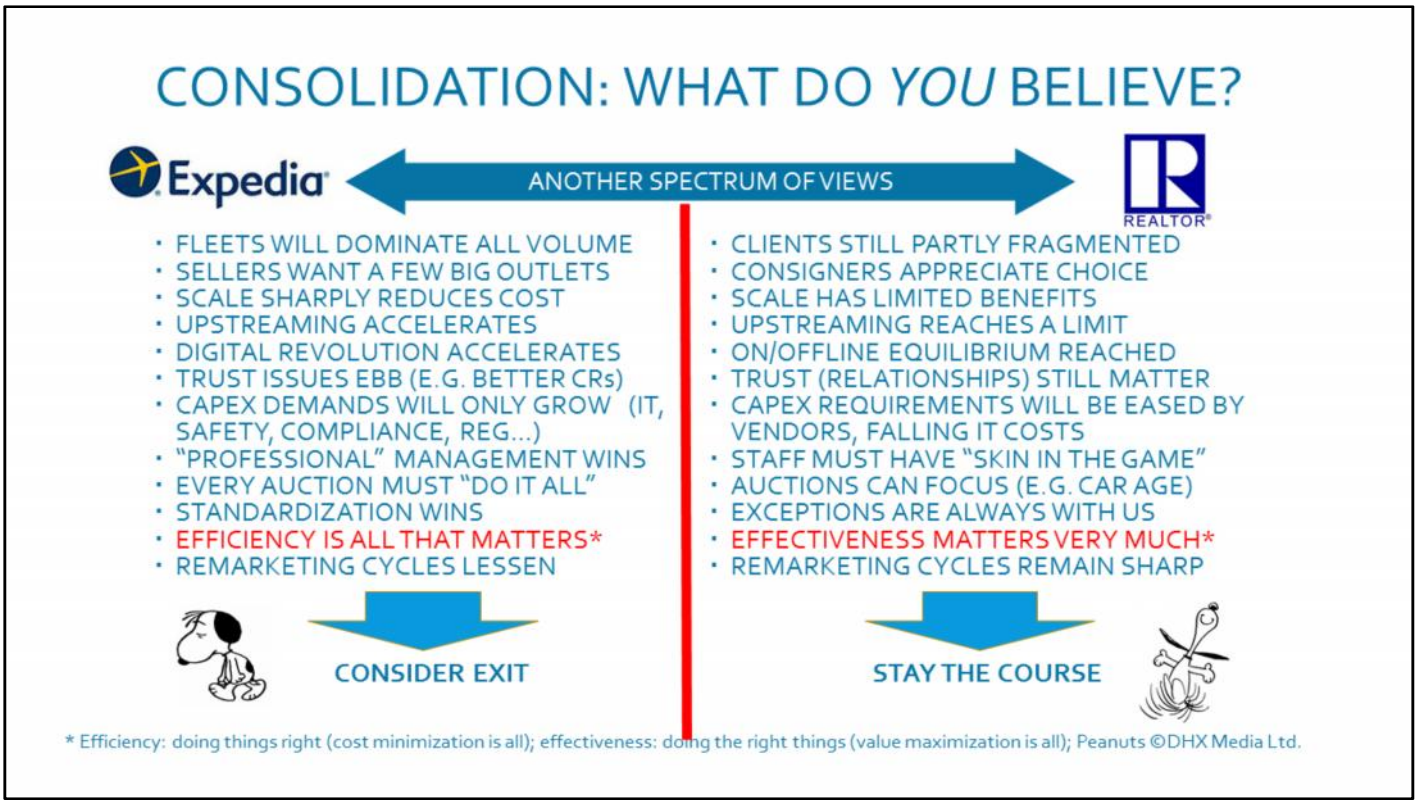
- INDEPENDENTS WILL CONTINUE TO DEPART (OWNERS, NOT SITES)
- EXIT WILL BE VOLUNTARY, ONLY SPED UP BY SOFTENING PROFITS
- REASONS FOR SELLING WILL VARY ON A CASE-BY-CASE BASIS*

DISAGREEMENT:

- "EVENTUALLY, ONLY THE CORPORATES WILL BE LEFT"
- "THERE WILL ALWAYS BE A ROLE FOR THE SMALL (RURAL?) AUCTION, AND FOR THE LARGE (REGIONAL/NATIONAL) CORPORATE: UNCLEAR ABOUT THE MIDDLE. TOO BIG TO DEFEND NICHE, TOO SMALL TO SERVE FLEETS?"
- "INDEPENDENTS ARE DOOMED UNLESS THEY POOL RESOURCES TO CREATE THE NEXT GENERATION OF ONLINE/DIGITAL PLATFORM."
- "THERE ARE / ARE NOT SIGNIFICANT ECONOMIES OF SCALE IN CHAINS."

* E.g. succession issues, desire to cash out, desire to avoid next round of (IT) investment, corporates offering high valuations...

Weaker profits feed into the next implication, that of consolidation. If indeed profits will be pressured, more independent auctions may decide to exit now, before the price a consolidator might offer also declines. But beyond the pure economics there are other considerations: for example, if independents collectively create new industry auction platforms, this might lead to lower costs, that restore profits, and reduce the urge to "throw in the towel." In any case, the consensus of our interviewees was that smaller players would not be *driven* from the marketplace (the way, for example, Blockbuster drove out the local sole-proprietor video shop), but that they might leave *voluntarily*, seeing the business as becoming more demanding and more standardized and – in a way – less personally rewarding.



To revisit Snoopy one last time, whether an individual auction would consider exit depends on that auction's view of the world. If you think the auction world is following the travel-agent industry down the road of dominance by a few massive online players (e.g. Expedia – which takes up to a 20% commission on every hotel night it sells!), then it may be time to go. If you think that the auction industry looks more like that of real estate, where the individual realtor still has a major role to play (admittedly while co-existing with online platforms such as Zillow), then you may decide to hang in there. We've listed the arguments pro and con above, but it will be up to the individual auction principal to make up her or his own mind.

5. FUTURE: FINDINGS

FIRST, "INSIDE" THE INDUSTRY

A. WILL THERE BE CARS FOR US TO REMARKET?

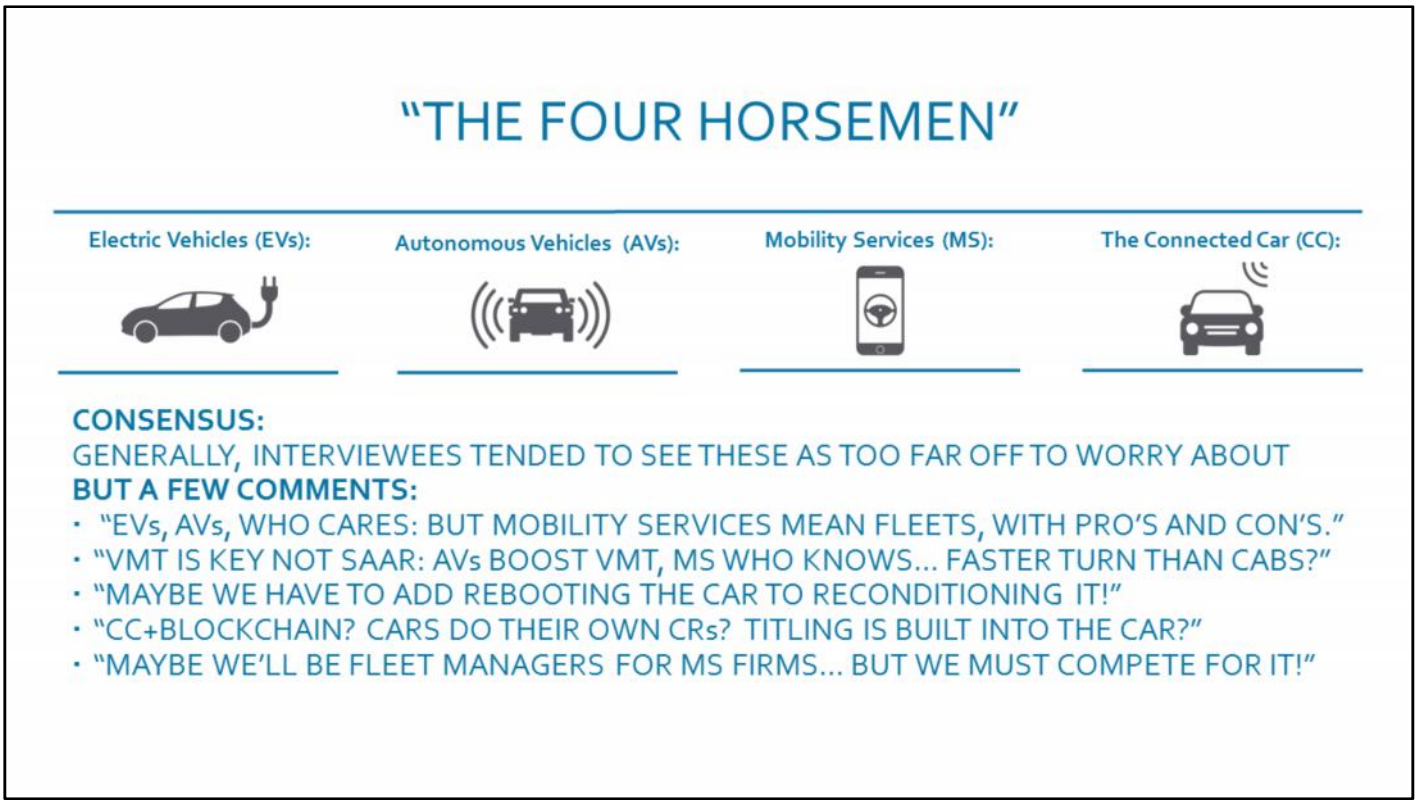
B. WHO WILL BE SELLING AND BUYING?

C. HOW WILL THEY BE REMARKETED?

D. WHAT ARE THE IMPLICATIONS FOR AUCTIONS? **ERODING ECONOMICS, MORE (BUT SLOW) CONSOLIDATION**

SECOND, "OUTSIDE" THE INDUSTRY

- **"THE FOUR HORSEMEN OF THE APOCALYPSE"** – EV, AV, MS, CC
- OTHER TOPICS (INTERNATIONAL, REGULATORY, DISRUPTION...)



Probably 90% of media coverage of the automotive industry today focuses on these four areas, known colloquially as "The Four Horsemen" (…of the automotive apocalypse). Enough has been written about these topics, backed up by tons of facts and even more tons of opinions, to sink a cargo ship. In terms of relevance to this project, however, we will only touch on some emergent conclusions as to how they might affect our industry. In the short run (5 or so years), the answer must be "not much," as sales of EVs and AVs in large quantities are not foreseen for some time (and the auction industry is driven more by the existing fleet of 275 million vehicles than it is by whether 2 million out of 17 million new sales in a given year are electric or autonomous). Accordingly, the great majority of our interviewees had no opinion on these four topics. We therefore backfilled this section of the report with supplemental expertise from other industry experts.

"THE FOUR HORSEMEN"

NEUTRAL	POSITIVE	UNCLEAR	NEUTRAL
Electric Vehicles (EVs):	**Autonomous Vehicles (AVs):**	**Mobility Services (MS):**	**The Connected Car (CC):**
FORECAST: Penetration of SAAR by 2025 of ~5% (PHEV+BEV). TODAY 0.6% **IMPACT:** Minimal: auctions can handle EV as easily as gasoline, diesel, more. **CONFIDENCE: HIGH**	**FORECAST:** By 2025 ~100% of new cars have high levels of ADAS; 50% with partial autonomy (TODAY 1% @ L2); and 10% capable of often driving in this mode. **IMPACT:** Probably positive: AVs likely to boost VMT and may very well boost new sales (e.g. elderly or disabled), likely age faster. But slow to penetrate total UIO. **CONFIDENCE: HIGH**	**FORECAST:** Highly uncertain. **IMPACT:** As configured today (taxi's, limo's), modest head-wind to SAAR (TODAY 1% OF VMT). But if AVs and MS are linked up ("robotaxis"), we enter a world of **"eternal rental."** Implications highly unclear. Lower SAAR but higher VMT, auctions could be fleet managers... or not. Higher fleet share has its own pluses and minuses. **CONFIDENCE: LOW**	**FORECAST:** Already well under way, as relatively cheap and easy to do. 50% TODAY? 100% by 2025. **IMPACT:** Auction impact may be minimal. Eventually CC may erode value of condition reports or even eliminate most title work, thus less need for auction as trusted intermediary. **CONFIDENCE: HIGH**

In very summary form, the combined impact (over a longer time horizon) of these four developments, on auctions (not on society as a whole) is probably mildly positive, but with a wide range of uncertainty, given that at least 3 of the 4 trends have current penetration rates under 1% (so we are all forecasting the proverbial "hockey stick."). EVs and CCs sales will not matter much to auctions one way or the other, as they are just one more vehicle feature set. And if AV sales grow, they will likely be beneficial to auctions, as these cars will be driven hard, and the more miles on a car the faster it ages -- and enters the remarketing channel sooner.

MS is the major wild card of the four, especially if combined with AV, since if services like Maven and Uber can grow dramatically (by replacing costly human-driven cars with automated "robotaxis"), retail sales of new cars will likely fall: why own a car if I can Uber everywhere at a very low cost? And if these MS fleets emerge, a larger percentage of vehicle sales in the USA will be fleet-owned, which on balance implies lower margins for auctions (versus initial retail ownership). Some interviewees asserted that this could be favorable for auctions, if they are selected to be the managers for MS fleets, but there is no guarantee this business won't go to large dealer chains like AutoNation, or to established fleet management firms such as Element.

In summary, the impact of these trends on auctions will likely be deferred, will possibly be positive, and will probably be unpredictable. Auction managers should stay alert and follow developments closely.

5. FUTURE: FINDINGS

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D. WHAT ARE THE IMPLICATIONS FOR AUCTIONS?

SECOND, "OUTSIDE" THE INDUSTRY

- "THE FOUR HORSEMEN" **NET NEUTRAL/POSITIVE... BUT VERY VOLATILE**
- **OTHER TOPICS** (INTERNATIONAL, REGULATORY, DISRUPTION...)

INTERNATIONAL

HUGE VARIATIONS AROUND THE WORLD, E.G.:

- UK HIGHLY DEVELOPED, CONTINENTAL EUROPE MUCH LESS SO
- UK MOSTLY PHYSICAL/ONLINE, JAPAN AND FRANCE MOSTLY DIGITAL
- NO DOMINANT MODEL OBSERVED

INSIGHTS FROM OUR CLOSEST COUSIN, THE UK:

- "SO FAR THE ONLINE TRANSITION HAS BEEN MANAGEABLE. NOW MOST TRANSACTIONS ARE HYBRID, WITH ONLY NEWEST CARS PURELY ONLINE."
- "OUR SELL RATES ARE SO HIGH (AROUND 80%) BECAUSE NO ONE HAS THE REAL ESTATE TO PARK THE CAR ON: WE *HAVE* TO MOVE IT."
- "BIGGEST ARE GETTING BIGGER, SMALLEST HANGING IN,MIDDLE WORRIED."
- "THE UK IS VERY ACTIVE IN MOVING P2P TO 'WE BUY YOUR CAR.'"
- "UPSTREAM REMARKETING MAY BE OUR BIGGEST CONCERN AT PRESENT."
- "A MULTIPLE LISTING SERVICE WOULD BE PROBLEMATIC..."

In researching this report we sought input from auctions outside the USA, since while this is a very local industry, we can always learn from other countries' experience. We got the most input from our friends in the UK, where the auction industry somewhat resembles our own. Perhaps the two most important insights from Britain were that a) the digital transformation can be managed; but that b) upstreaming does represent a real threat.

(ETERNAL) REGULATORY ISSUES

- **SAFETY**: Of course a critical issue. No more driving cars through lanes? Probably handled by the industry, versus by government, but hard to say.
- **OPEN SAFETY RECALL MANAGEMENT:** How will auctions be required to handle these? The situation will possibly get worse with OTA (over-the-air) software updates. States drive the issue, but will Washington jump in?
- **CYBER SECURITY / DATA PRIVACY:** Who scrubs the car of previous owners' data? Can it be scrubbed? Can auctions add "digital recon" to their services?
- **TITLING:** Also varies by state, lots of costs, minimal benefits. E-Titling on the rise. Some discussion of blockchain, "big brother" issues, etc.
- **REGULATORY OVERSIGHT GENERALLY:** Industry participants have generally been reactive to regulation since an active period in the 1980s, but individual firms may now be in favor of having more proactive interactions with their representatives and regulatory agencies (e.g. via educational efforts).

SOURCE: NAAA; interviews

Predicting regulatory developments requires predicting political developments, and as pundits can scarcely predict this year's election, let alone those a decade out, we have steered clear of making pronouncements about regulatory issues. We do realize that these issues have an enormous impact on the industry, and so are not to be shoved aside (although it is true that no interviewee mentioned any regulatory issue as "make or break" for auctions). But we also realize that they are "eternal" (a regulatory issue will be solved this year, and then a new one will pop up next year), and that in the NAAA the industry already has on its side a tireless watchdog keeping a close eye on this constantly-churning field. Probably the best way auctions can deal with regulatory uncertainty is to support and participate in the NAAA and other industry associations, in their efforts to keep up with regulatory and political developments, to develop proposals for dealing with these matters, and then for working with elected and other officials to ensure sensible resolutions which safeguard the industry's health and well-being.

DISRUPTIONS: A FEW CANDIDATES

- **NEW ENTRANT:** Amazon (on the online front), Walmart (on the offline front): the former has vast online assets, the latter vast physical assets, and both control millions of customers and billions of dollars: could either enter? Lure of a huge market offset by challenge of a difficult, complex business: may need to partner.
- **MLS: A MULTI-LISTING SERVICE APPEARS:** Could a new branded cross-platform listing service emerge, and siphon off value? The analogy is Expedia and others, who charge a ~25% commission on every hotel room rented via them.
- **RECESSION:** Inevitable, and never a good thing, but could be especially bad for independent dealers, who are reliant on low-rate/widely-available floorplan lines
- **PHYSICAL REALIGNMENT OF AUCTIONS:** If we shift to a 24/7 online-enabled mode, it may make sense to move to smaller, more conveniently located sites, since there will be less need to accumulate vast numbers of cars for weekly runs.

We have already reviewed – to the best of our ability -- the major threat and opportunity *trends* facing whole-car auctions in the USA over the next decade. However, interviewees mentioned three "big bang" events which could disrupt the industry, but which could not be forecast as trends, since they would depend on a single action or development.

The fourth item is not a "big bang" event, but as it was mentioned by several interviewees, we felt it should be included. While we understood the argument (in an online world there would be less need for gigantic physical auctions located on cheap land out in rural areas), it seems to us that any shift to auction relocation will be very slow, as it would require disposal of current real estate, acquisition of new real estate, and massive amounts of permitting work, all of which will likely take years to execute.

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SECOND, "OUTSIDE" THE INDUSTRY

- "THE FOUR HORSEMEN OF THE APOCALYPSE"
- **OTHER TOPICS STABLE FOR NOW, BUT STAY ALERT**

6. CONCLUSIONS

THE PAST SHAPES THE FUTURE: AUCTIONS HAVE ADAPTED, AND WILL ADAPT

- THE LONG-TERM FLOW OF USED CARS SHOULD BE STABLE, IF UNLIKELY TO GROW
- THE MIX OF CUSTOMERS WILL LIKELY SHIFT... AND NOT NECESSARILY FAVORABLY
- BOTH DIGITAL AND UPSTREAM REMARKETING WILL GROW... PRESSURING PROFIT
- "THE FOUR HORSEMEN" ARE NET NEUTRAL TO POSITIVE... FOR NOW
- THE OVERALL OUTLOOK WHILE POSITIVE IS MORE VOLATILE THAN BEFORE

IMPLICATIONS FOR ACTION

- CONTINUE TO INVEST IN INFORMATION TECHNOLOGY, TO STAY COMPETITIVE
- CONTINUE TO BROADEN AND DEEPEN SERVICES, TO RESTORE REVENUES
- REDOUBLE COST CONTROL, TO MAINTAIN PROFITS AS MARGINS ARE PRESSURED
- STAY ALERT! FOR ACCELERATING TRENDS, OR NEW ENTRANTS

SUMMING UP: OVER THE NEXT 5-10 YEARS, EVOLUTION BUT NOT REVOLUTION, AND RENEWAL BUT NOT REINVENTION...yet!

The slide is self-explanatory. The outlook for volumes is likely mildly positive, but volatile, while the outlook for profits is mildly negative. Auctions should therefore invest carefully in new technologies and services that might offset the digitization and upstreaming trends, all the while trimming costs in response to eroding margins. And finally, astute managers will keep an eye on the external trends mentioned, lest they unexpectedly accelerate. Barring that however, it is the core conclusion of this report that the American whole-car auction industry will see steady and possibly troubling evolution over the coming years… but not revolution.

7. END NOTES: THANKS

Chad Bailey, Jim Desrochers, Frank Hackett, George Hoffer, Lynn Weaver, Tom Webb, Karyn Wrye, Joe George, Sue Saris, Grace Huang, Jerry Hinton, Janet Barnard, Alex Fraser, Tricia Heon, Jeff Risner, Maryann Keller, Stephane St. Hilaire, Mike Broe, Tom Dobry, Louise Wallis, Charlotte Pyle, Steve Jordan, Mike Stanton, Tim West, Bob Hollenshead, Cam Hitchcock, Ray Nichols, Joseph Bannon, Warren Bird, Tom Lynch, Mike Waterman, Bill McIver, Larry Tribble, Steve Kapusta, Joe Overby, and various executives who wished to remain anonymous (or whose identities had to be concealed to avoid "reverse engineering" of quotations)...

... TO ALL THESE PEOPLE, AND TO ANY I INADVERTENTLY OMITTED:

MY THANKS, AND THE THANKS OF THE NAAA!

If I have left anyone out (who wishes to be named in a revised version of this document), or if you would like your name *removed* from it, please contact me!

7. END NOTES: WHAT HAPPENS NEXT

NOW THAT THIS PRESENTATION HAS BEEN SHARED AT THE NAAA CONFERENCE, THE NEXT STEP IS TO PROVIDE AN ANNOTATED VERSION FOR MEMBERS TO EXAMINE, AND TO SEEK FEEDBACK AND INPUT.

PLEASE PROVIDE SUGGESTIONS, CORRECTIONS, AND QUESTIONS TO THE AUTHOR, AT:

auctionoftomorrow@gmail.com

(The document you are currently reading is the annotated version promised at the conference in Palm Springs.)

7. END NOTES: SOURCES

ACADEMIC

- BLACKWELL
- GENESOVE (2)
- HAMMOND
- KIM
- LACETERA
- LARSEN (3)
- OVERBY (3)
- ZETTELMEYER

INDUSTRY

- ADESA (VARIOUS)
- BCA (UK; VARIOUS)
- COX/MANHEIM (VARIOUS)
- DEALERSOCKET
- IARA
- JOURNALS (AUTOMOTIVE FLEET, AUTOMOTIVE NEWS, AUTO REMARKETING (*INCLUDING PODCAST*), AUTO RENTAL NEWS, USED CAR NEWS, ETC.)
- NAAA (VARIOUS)
- NADA (VARIOUS)
- NIADA (VARIOUS)
- WEBSITES OF INDUSTRY PARTICIPANTS (NUMEROUS)

This is list of the main sources consulted for this report, with those drawn upon most heavily noted in red. My thanks to all involved for providing so much useful data and information! On the academic front I have just listed here the last names of the primary authors of papers (with number of papers cited shown in parentheses): for a more detailed bibliography please contact me.