

Pledge Capital, LLC

555 Madison Avenue, New York, NY 10022

edward.chang@pledge.capital

Best Ideas 2021, Hosted by MOI Global

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About Pledge Capital



Run a concentrated portfolio of small and mid-cap stocks.



Invest in businesses that are taking market share and/or transforming their industry.



Target 30% IRRs.

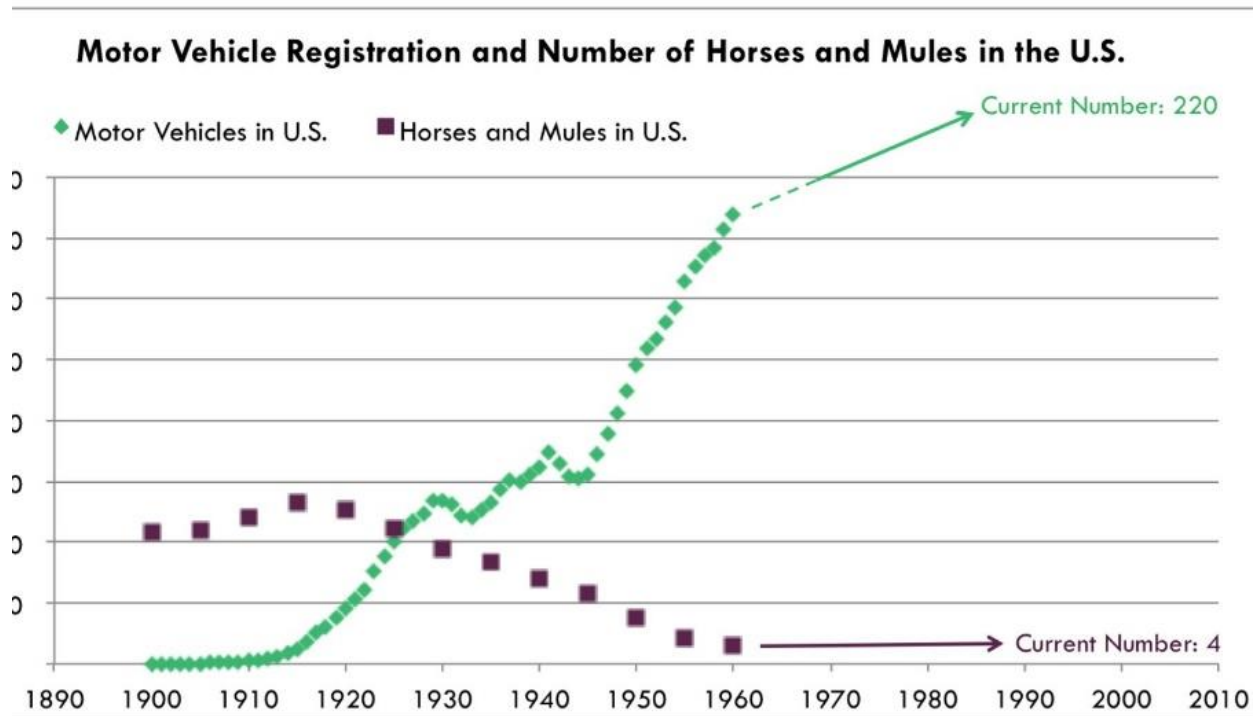
Lessons from my time at UBS



Investors underappreciated digital transformation at Panera and McDonalds.

- Many investors were deeply skeptical that embracing digital would save an off-trend QSR player like McDonalds.
- Investors were in patient over long roll out timelines at Panera. Chains often had dozens of point-of-sale vendors, and it was a long process to integrate each system. Investors were also worried the competition would quickly follow and erase their digital advantage.

Looking for inflection points



ARK Investment Management LLC, Bureau of Transportation Statistics, Bloomberg Intelligence, EVvolumes.com, IDC

We love finding two types of investments:

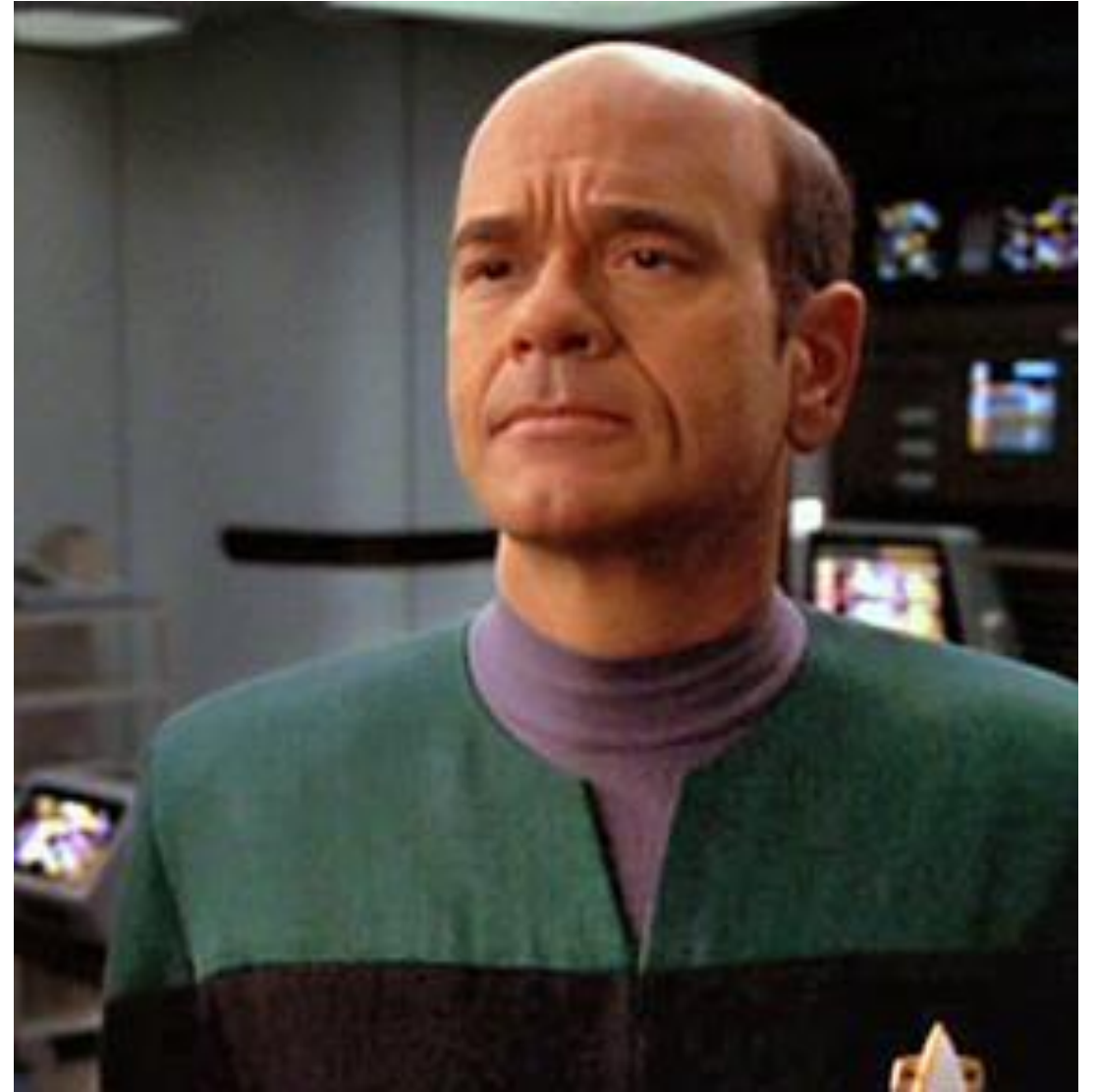
- A business which has a great product or service that is in the early days of market share gains.
- An established company that is building out a new product cycle and will transform its industry.

Nuance's Game Changing Technology

Improving quality of life for doctors and boosting financial returns for hospital systems


The case for Ambient Clinical Intelligence (ACI)

- Imagine if doctors had an AI assistant that “Listens to the conversation, disambiguates the voices, follows the consultation, gives suggestion to the clinicians, transcribes the situation so there is a complete record, and fills out and navigates the EHR [electronic health records].” – Eric Schmidt
- AI can beat the best chess players but imagine if you armed the best chess players with the best AI. Imagine if we armed doctors with the best AI.



Is ACI Possible?

- Eric Schmidt @ GOOG – “This technology, everything I just described [ambient clinical intelligence] is buildable today or in the next few years.” Mar. 2018
- Satya Nadella @ MSFT – “Today, advances in computing are transforming every place, every profession, every industry and everywhere. We have an incredible opportunity to apply these advances to address some of the world’s biggest challenges, including healthcare delivery. That is why I’m so enthusiastic about the strategic partnership we announced with Nuance. Together, we will apply the power of Azure AI to improve the day-to-day life of first-line health care workers everywhere. Our ambition is to power the exam room of the future, where clinical documentation writes itself.” Dec. 2019
- Raghav Mani @ NVDA – “In a way, at the beginning stages of this [ambient clinical intelligence]. I would also say the technology is mature enough for production usage.” Oct. 2020



Like innovators in the autonomous vehicle industry, Nuance is using reinforcement learning to improve three key algorithms to improve its level of accuracy in ambient clinical intelligence.



Recognizing speech



Differentiating between
the patient, doctor and
other parties



Determine what is
medically relevant

A note created by the algorithm


- This note was created by ambient clinical intelligence and shared in a live demonstration with doctors.
- It is missing the patient's name and the initial severity of the pain.
- Imagine having to recall every important detail in a 5-45-minute consult. Multiply that by 15-40 consults per day. Capturing every single relevant detail is a problem for most doctors.

HPI	<p>CC: Left hip pain.</p> <p>HPI: Mr. is a 54-year-old male who presents today for an evaluation of left hip pain. He states he was skiing with his son and daughter last Saturday and fell on some ice. He states he heard a slight crack. He rates his pain at 7/10. He has tried applying ice and taking Tylenol and ibuprofen. He states the pain improved the next day but did not completely resolve. He states the pain wakes him up at night. He had some numbness and tingling in his foot when the injury first happened but it resolved on Sunday. He has a history of right total hip arthroplasty for arthritis.</p>
EXAM	<p>Physical exam reveals a well-nourished, well-developed male in no acute distress. He is alert and oriented x3.</p> <p>Examination of the left hip shows no pain with extension of the knee. Pain with internal rotation. More pain with external rotation.</p>
RESULTS	<p>X-rays of the left hip, AP pelvis obtained on today's visit shows a left total hip arthroplasty in good position. No signs of loosening or failure.</p>
ASSESSMENT / PLAN	<p>IMPRESSION Left hip greater trochanteric bursitis.</p> <p>PLAN At this point, I discussed the diagnosis and treatment options with the patient. I have recommended ice for 20 minutes at a time twice a day. We will give him a prescription for meloxicam 15 mg once a day for the next 2 weeks. I gave him some home exercises to do for hip stretching. He will follow up with me in 2 weeks for a repeat evaluation. All questions were answered.</p>
DISCRETE DATA	<p>MEDICATION ORDERS: - Meloxicam 15 Milligram 1/Day</p> <p>PROBLEMS: - Left hip pain - tingling in his foot - trochanteric bursitis</p> <p>PAST MEDICAL HISTORY: - numbness - arthritis</p> <p>PAST SURGICAL HISTORY: - total hip arthroplasty</p>

Note edited by human reviewer

- Like Waymo, Nuance is using reinforcement learning to help its NLP algorithms improve.
- The reviewed note has two key changes:
 - Patients name is updated
 - Severity of pain at initial injury

New Note



Dave Pashayan
09/25/1965 (55)
PCP: Dr. Jared Pelo

HPI
CC: Left hip pain.

HPI: Mr. Pashayan is a 54-year-old male who presents today for an evaluation of left hip pain. He states he was skiing with his son and daughter last Saturday and fell on some ice. He states he heard a slight crack and had immediate severe pain rated 9/10. He rates his pain currently at 7/10. He has tried applying ice and taking Tylenol and ibuprofen. He states the pain improved the next day but did not completely resolve. He states the pain woke him up at night initially. Now he has difficulty falling asleep due to the pain. He had some numbness and tingling in his foot when the injury first happened, but it resolved on Sunday. He has a history of right total hip arthroplasty for arthritis. He also has hypertension.

EXAM
Physical exam reveals a well-nourished, well-developed male in no acute distress. He is alert and oriented x3.

Examination of the left hip shows pain about the hip with extension of the knee. Pain with internal rotation of the left hip. Maximal pain with external rotation. Tenderness to palpation about the lateral aspect of the left hip.

RESULTS
X-rays of the left hip, AP pelvis, obtained on today's visit are normal.

ASSESSMENT / PLAN
IMPRESSION
Left hip greater trochanteric bursitis.

PLAN
At this point, I discussed the diagnosis and treatment options with the patient. I have recommended ice for 20 minutes at a time twice a day. We will give him a prescription for meloxicam 15 mg once a day for the next 2 weeks. I gave him some home exercises to do for hip stretching. He will follow up with me in 2 weeks for a repeat evaluation. All questions were answered.

DISCRETE DATA
MEDICATION
ORDERS:
- Meloxicam 15 Milligram 1/Day

PROBLEMS:
- Left hip pain
- tingling in his foot
- trochanteric bursitis

PAST MEDICAL HISTORY:
- numbness
- arthritis

PAST SURGICAL HISTORY:
- total hip arthroplasty

The market is eager for this service



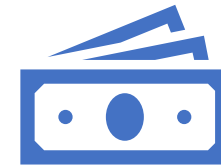
Physician burnout

3-4 hours spent on paperwork and in the EHR / dissatisfied doctors, early retirement, high turnover, and even suicide



Poor Patient Experience

Affects service scores, which can impact revenue to an extent



Financial Incentives

Increased capacity for doctors; and reduce Underbilling = lost revenue / Overbilling = costly audits and penalties

Lifestyle reasons physicians will adopt ACI

- “When I showed friends who are providers, tears literally came to their eyes.” – Greg Moore, MD, PhD @MSFT
 - “50-75% reduction in clinical documentation time.” – Peter Durlach, SVP @ Nuance.
 - “I would say it saves me one to two hours per half day of clinic.” – Orthopedic Surgeon @ Hospital System
 - “I can go to their baseball games at 5:30 and pick them up.” Orthopedic Surgeon @Tennessee
 - “When you’re a parent with a sick child, when the physician’s talking to you and looking at the computer more than you, trust is hard to build.” – Pediatric Psychiatrist @Eastern U.S.
- “The early users of the solution are becoming the internal unpaid supporters of the solution within their systems. They’ve become the best salespeople, we have. Some of these develop their own presentation. Some of these folks have developed their own ROIs and they go on their own selling spree. So, it’s very beneficial and it’s totally grassroots.” – 4Q 20 NUAN Call

Financial reasons to adopt Dragon Ambient eXperience (DAX)

- Priced at ~\$10-12,000 per year, DAX frees up significant capacity to see additional patients. For early adopters, it is generating a significant return on investment that far exceeds the cost.
- While ROIs are significant right now, they will likely decline over time as the industry adopts DAX. Not every physician can increase their volume by 20%.
- Reduced turnover and higher employee retention, due to increased satisfaction.

CARDIOLOGY

17

Maximum # of visits per full clinic day w/o DAX

21

Maximum # of visits per full clinic day w/ DAX

4

Additional visits seen per day

24%

Increase in daily patient visits

\$3,697,916

Average annual revenue within specialty⁴

40%

Visit to revenue ratio⁵

\$348,039

Additional annual revenue due to DAX

PRIMARY CARE

14

Maximum # of visits per full clinic day w/o DAX

18

Maximum # of visits per full clinic day w/ DAX

4

Additional visits seen per day

29%

Increase in daily patient visits

\$2,111,931

Average annual revenue within specialty⁴

70%

Visit to revenue ratio⁵

\$422,386

Additional annual revenue due to DAX

ORTHOPEDICS

21

Maximum # of visits per full clinic day w/o DAX

29

Maximum # of visits per full clinic day w/ DAX

8

Additional visits seen per day

38%

Increase in daily patient visits

\$3,286,764

Average annual revenue within specialty⁴

25%

Visit to revenue ratio⁵

\$313,025

Additional annual revenue due to DAX

Other factors that may drive adoption

Like body cameras for law enforcement, ACI may help doctors defend themselves against malpractice lawsuits

- Physicians often cannot recall every single detail in a patient visit.
- Insurers could possibly offer a discount on medical malpractice insurance for subscribers of ambient clinical intelligence.

Nuance is working with third party software developers, who want to automatically screen patient for signs of mental health issues.

- This could dramatically reduce gun violence – suicides and mass shootings.
- Peter Durlach, SVP - "do depression screenings, using acoustic signals of the patient. Imagine if you are a mental health professional, and you want to use that capability. That same device that is helping you with documentation could provide mental health scoring, that shows up in the E-HR, just off the acoustic capability."

2009-2018

US MEDICAL MALPRACTICE PAYMENTS BY YEAR

Payments in the Millions



Nuance's Competitive Position

A dominant player introducing
game-changing technology

Nuance's Competitive Advantages

- Very sticky product with extremely high switching costs
- Established relationships with hospital systems and credibility with Chief Medical Information Officers
- Significant reservoir of medical notes data and the corresponding voice data
- Flywheel – increased base of users → increased data → improved accuracy

Established relationships with healthcare providers

- ***Privileged Footprint with Established, Long-Tenured Client Base.*** *With a presence in 90% of U.S. hospitals and with 80% of radiologists, we are an established market leader within Healthcare. Our flagship product Dragon Medical has a user base of over 550,000 physicians and over 55% market share of the entire U.S. physician market, creating an exciting opportunity to deploy incremental AI solutions and added intelligence across our installed base. Within our Enterprise division, we service 85% of Fortune 100 companies, reinforcing our established position in the upper end of the market. – Nuance 10-K*
- According to our channel checks, physicians have been burned by new technology from new entrants. Reality has fallen short of promises. Many physicians are skeptical of new technology. Nuance and M*Modals has existing relationships and credibility with CMIOs.

Nuance has a strong competitive position

- ***“Data Driven Technological Superiority.** We have deep domain expertise and our conversational AI technologies; applications and solutions are often recognized as the most innovative and proficient in their respective categories. Our ASR and NLU solutions have industry-leading recognition accuracy and provide a natural, voice-enabled interaction with systems, devices and applications. This technological superiority and AI verticalization are driven by our massive data repository of over 3,000 terabytes aggregated over more than two decades. Technology publications, analyst research and independent benchmarks have consistently indicated that our solutions and technologies rank at or above performance levels of alternative solutions.”* – Nuance 10-K
- Nuance is the largest player in the healthcare voice recognition industry, with ~66% market-share and primarily competes with M*Modal which holds the other 1/3 of the market. Together they hold the two largest database of healthcare specific voice data.
 - Electronic Health Record companies have the medical notes, but not the voice audio used to transcribe those notes.
 - Individual healthcare systems have the medical notes, but not the voice audio used to transcribe those medical notes.
 - Nuance has both the voice audio and the medical notes.

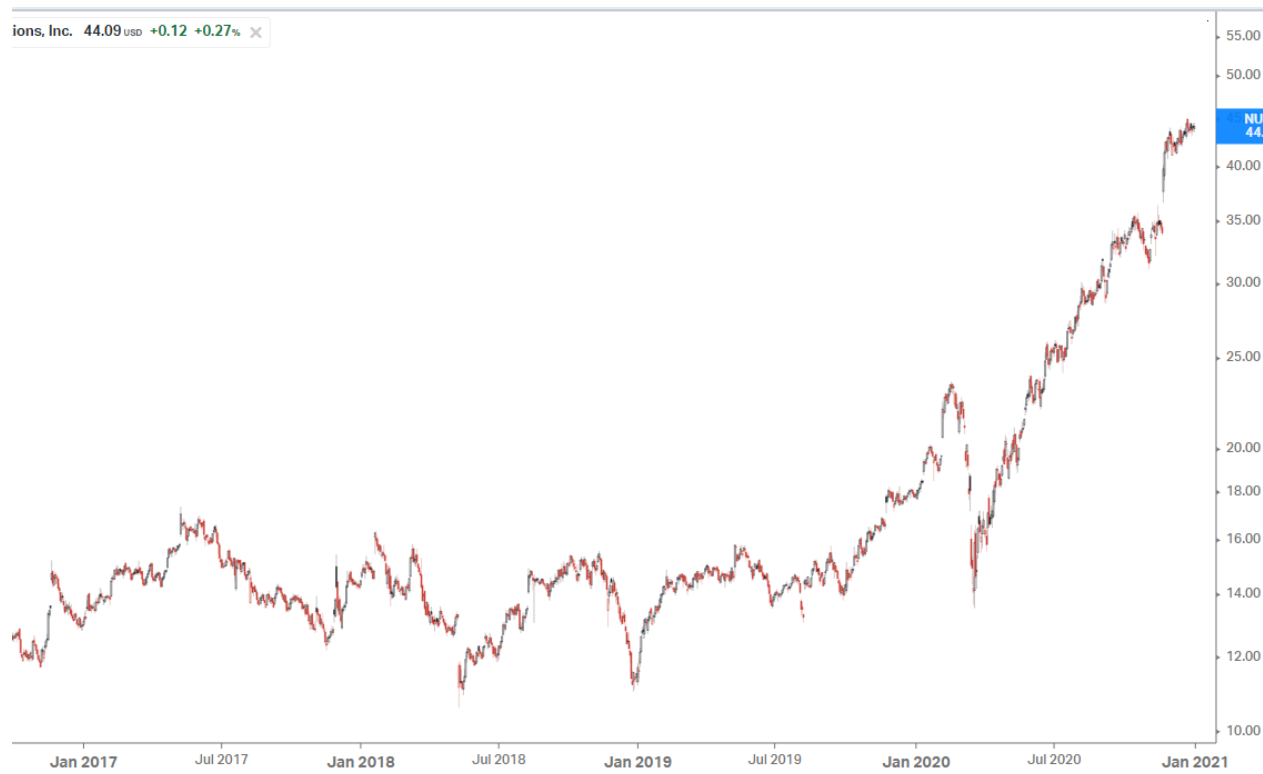
Potential Competitors

- Google, Amazon, and Microsoft
 - Google has had significant privacy issues with the Project Nightingale
 - Hospitals are fearful that Amazon will try to disrupt their business model
 - Microsoft has partnered with Nuance rather than go at it alone
- Cerner, Epic, and other E-HRs
 - Significant risk factor as gatekeepers into EHRs
- M*Modal
- Start-ups: Saykara, Suri, and others
 - Nuance has a scale advantage

Valuation

A potential multi-bagger

The market is pricing in DAX...



- ...But NUAN can still be a homerun stock if DAX becomes widely adopted by physicians.
- Dominant player in software-enabled voice transcription for the healthcare industry. High switching costs.
- This software business generates recurring revenue, is capital light and could earn 80-90%+ gross margins.
- Total addressable market for DAX could be worth \$4-5B+.
- The company is demonstrating significant pricing power for DAX, versus its legacy Dragon Medical One (DMO) product.

Scenario Analysis

Bull

Bull Case: ~33% of the doctors in the U.S., Europe, and Canada pay ~\$10K per year for DAX in 5+ years. The company earns a ~85% gross margin. Assuming ~30% for corporate overhead, the DAX business is worth \$82.5-110B valuation at 15-20x EBIT.

Base

Base Case: 20% of the doctors in the U.S., Europe, and Canada pay ~7.5K for DAX in 5+ years. The company earns a ~75% gross margin. Assuming ~35% for corporate overhead, the DAX business is worth ~\$25.2B at 15x EBIT.

Bear

Bear Case: 10% of the doctors in the U.S., Europe and Canada pay ~7.5K for DAX in 5+ years. The company earns a ~75% gross margin. Assuming ~40% for corporate overhead, the DAX business is worth ~\$11B at 15x EBIT.

Appendix

The Advantage of Scale

- Like the autonomous vehicle industry, ambient clinical intelligence currently relies on human reviewers who ensure accuracy of clinical notes while helping the algorithms improve their accuracy through reinforcement learning.
- This increases operating complexity and costs, so at the present the technology is not scalable like a normal software solution. Compared to new entrants, Nuance and M*Modal have experience managing telephone transcription services. They also have significant free-cash-flow and greater financial resources.
- There are already anecdotal reports of Nuance DAX users who are skipping the human review process and receiving clinical notes instantaneously. We believe the clinical notes are already very accurate in a few healthcare specialties.

