Confidential Investment Memorandum

Summer 2018

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- Technological developments
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I. Executive Summary

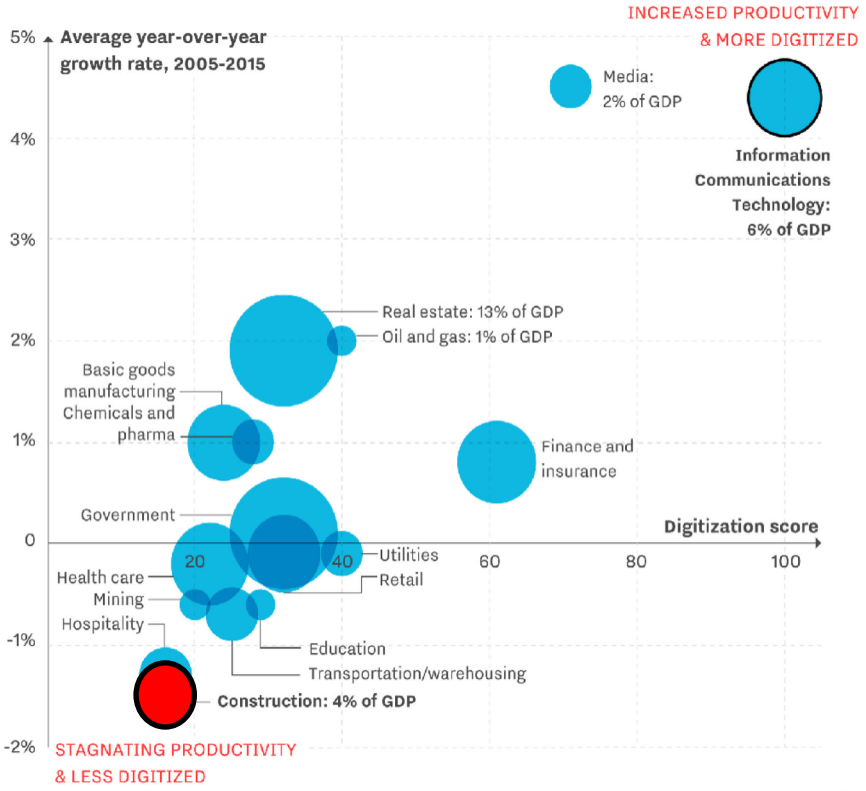
The Global Construction Industry Is In Need Of Change

Business Case

- The global construction industry is a ~$10 trillion annual market which is expected to grow at a +8.5% CAGR over the next five years
- The industry faces significant headwinds arising from: i) inability to generate productivity gains ii) severe labor shortages iii) wage and commodity price inflation, and iv) “greening” and mandated reductions in waste and harmful by-products
  - According to the U.S. Bureau of Labor Statistics, as of February 2017, nearly 200,000 construction jobs were left unfilled
  - On average, 98% of construction megaprojects are over budget and over time
- **Basis point improvements in productivity could yield hundreds of millions of dollars in recurring benefits - robotics, artificial intelligence and digitization can transform the industry**

Technology & Productivity Across Industries

Industry Gains & Size as % of GDP



Source: Recode June 6, 2017/McKinsey Global Institute

Aryze Will Bring Productivity Gains To The Global Commercial Construction Market

Aryze is developing and deploying technology solutions for the commercial construction value chain that deliver productivity enhancements and mitigate the impacts of human error

ROBOTIC APLICATIONS[1]

- **Painting, Spraying & Application of Viscous Liquids:** Robotics will support faster application and single finish coat, reduce surface preparation, dramatically reduce waste and offer the ability to operate "after hours"
- **Concrete Coring:** Robotics will provide precision, speed, consistency and eliminate error rates in coring concrete and other related substrates and materially improve safety
- **Flooring:** Robotics will significantly improve speed and consistency and improve safety when laying tile and other flooring materials

ARTIFICAL INTELLIGENCE & MACHINE LEARNING

- **Pre-Deployment Inspection:** AI and other technologies "scan" the work area for defects, code violations or other outliers to specifications with precision and accuracy before labor and materials are used which will reduce change orders and other re-work
- **In-Situ Control:** User Interface and other functionality prevent waste, error and duplication of effort if deviations are found while robotics are deployed
- **Post-Deployment Inspections:** Ability to cross reference plans, specifications and completion to ensure that jobs are error free and/or remedied prior to inspection or CO issuance

[1] Current portfolio of applications only

Aryze Believes That An Investment In Driving The Transformation Is Warranted

Our business strategy is predicated on three fundamental principals

CAPTURE SHARE IN A LARGE ADDRESSABLE MARKET & DRIVE PRODUCTIVITY GAINS

- Global construction market is currently USD$10 trillion and expected to grow to USD$15 trillion in 2022 (CAGR of 8.5%)
- The industry faces ongoing structural challenges exacerbated by significant volatility and margin compression
- Reducing delivery times, mitigating human error, waste and other inefficiencies will materially improve profitability across the industry and cushion it from other non-controllable factors (e.g. rising interest rates, commodity volatility)
- Aggregating, utilizing and monetizing data will further support the business and transformation across the industry

MAINTAIN FLEXIBILITY & SUPPORT DISCIPLINED SCALE & SCOPE EXPANSION

- The service -driven operating model enables rapid scalability through the deployment of "modular units" into specific markets
- Modular structure deploys "self-contained" teams that are trained and manage against a uniform standardized process across applications
- Technology backbone will support and leverage data collection, AI/machine learning and analytics to adjust the model and support expanding in to new and adjacent markets

CONTINUALLY DELIVER SUPERIOR RISK ADJUSTED RETURNS

- Multiple markets, products and revenue streams produce a portfolio that insulate against sector/use case volatility
- Technology driven service model is highly efficient and produces significant cash flows
- Flexible structure allows for multiple follow-on financing approaches to facilitate growth and/or allows for separate and independent monetization events

Full Potential Opportunities Span Multiple Adjacencies

The Aryze platform can be extended into multiple markets as well as deployed against adjacent applications/use cases that will drive the digitization of global construction markets

ADDITIONAL TRADES

- Electrical Wiring
- Drywall & Sanding
- Plumbing Infrastructure
- 3D printed componentry

SUPPLY CHAIN & PROCURMENT DIGITIZATION

- Commercial purchasing portal enabled through digitized of "take off" processes and matching buyer requirements with sellers to promote pricing transparency and a more efficient supply chain
- Unified process supports JIT supply chains, reduces waste and permits adjustment to work-flows based upon supply chain interruptions

PRODUCTIVITY APPLICATIONS

- Just In Time supply chain enablement
- Workforce scheduling that adjusts to changes and other disruptions in process flows in order to reallocate/reschedule labor

DATA AGGREGATION & MONETIZATION

- Utilize data to support BIM, architectural and related engineering redesign/technologies
- Utilize data and AI to support improved building automation, efficiency and performance of key systems such as HVAC
- Digital CAD/AI and scanning inspections at various points in the construction process with respect to code compliance and defect detection

Aryze Will Play A Significant Role In The Transformation Of Commercial Construction

Investment Overview

- Aryze is seeking at least $7.5 million in equity capital to capture its early mover advantage in deploying robotics and AI that deliver productivity gains and complexity reduction across the commercial construction ecosystem
- Aryze is in the later stages of completing its robotic painting/spraying prototype which we expect to be in testing by mid- August 2018,
  - Two other robotic applications, concrete coring and the laying of tile/flooring, are developed and ready to proceed to proto-typing
- While there are others organizing around construction robotics, Aryze believes it has both an early mover advantage and best-in-class robotics and AI technologies to deploy against this considerable opportunity

Base Case Financial Profile

	2018	2019	2020	2021	2022
Revenue	$ 84,929	$ 10,146,940	$ 31,218,430	$ 74,998,878	$ 152,326,002
COGS	819,123	8,300,332	17,348,196	36,274,723	63,109,301
Gross Margin	(734,194)	1,846,608	13,870,234	38,724,155	89,216,701
SG&A	836,993	7,791,179	13,487,524	24,305,934	39,008,662
EBITDA	(1,571,187)	(5,944,570)	382,710	14,418,222	50,208,039
Net Income	$ (1,005,560)	$ (3,804,525)	$ 244,934	$ 9,227,662	$ 32,133,145
Gross Margin %	-864.48%	18.20%	44.43%	51.63%	58.57%
SG&A %/Sales	985.52%	76.78%	43.20%	32.41%	25.61%
EBITDA Margin	-1850.00%	-58.58%	1.23%	19.22%	32.96%
Net Income %	-1184.00%	-37.49%	0.78%	12.30%	21.09%
YOY Rev Growth	n/a	11947.6%	307.7%	240.2%	203.1%
Productive Units (EOY	4	27	70	155	292
Rev/Robot	21,343	372,473	445,420	484,324	521,363
Rev/Robot Growth	n/a	1645.2%	19.6%	8.7%	7.6%
R&D %/Revenue	2.50%	9.92%	6.88%	7.36%	7.84%
Sq Ft Painted (a)	78,820	9,339,694	26,522,346	55,733,190	100,559,655
Average Sqft/Job	-	25,000	25,000	35,000	45,000
Number rof Jobs	-	374	1,061	1,592	2,235
Cores Completed (a)	-	-	22,190	102,736	222,540
Sq Ft Tile Laid (a)	-	-	26,528	905,042	3,659,496

(a) Based on average units in operation

A: Based on average units deployed during the year
Source: Internal analysis –Aryze_FM_v75.F_180801

Aryze Is A Compelling Investment

Business Driver	Comments
Large Market With Compelling Dynamics	• Large addressable market with significant growth across the globe • Industry in need of capturing productivity improvements to maintain margins • Structural inefficiencies caused by skilled labor shortages unlikely to be resolved • Uncertainty caused by tariffs and immigration issues will require projects to be re-underwritten
Multiple Cash Flow Streams & Monetization Structures	• Applications deployed across multiple use cases, trades and geographies • Data driven services provide opportunities to build and monetize additional businesses • Alternative models support growth and can create monetization events (e.g. area developer, turnkey/franchise, regional rights)
Proprietary IP	• Exclusive rights to market leading robotics and AI technologies • Perpetual, royalty-free license and exclusive rights to technologies in construction and adjacent markets that “follow” the Company • Flexibility to partner with other industry participants to accelerate development and deployment
Repeatable & Scalable Operating Model	• Operating model borrows from best-in-class cohorts to leverage lessons learned • Process driven approach supports uniformity in deployment and enhances scaling
Adjacent Applications & Growth Opportunities	• Additional “trades” appropriate for automation and AI • Development of Government Services platform • Ability to digitize the supply chain, develop procurement marketplace and workflow applications • On-site inspection supported through AI and visualization applications
Experienced Leadership & Network	• World leading robotics and AI resources • Classically trained and experienced leadership team that has worked together • Access to deep and wide network around the globe

II. Construction Automation

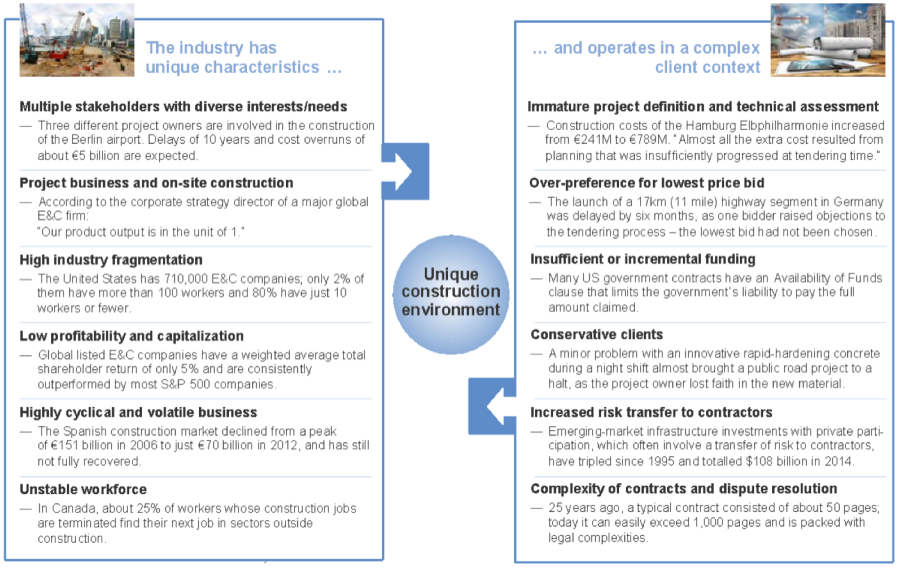
The Construction Industry Is Complicated, Highly Fragmented & In Need Of Transformation

Forces Impacting Global Construction

- Multiple global megatrends are shaping the future of construction:
  - **Greening:** 30% of global greenhouse gas emissions are attributable to buildings . The UK government has set a target of a 50% reduction in today's level of greenhouse gas emissions by 2025
  - **Ongoing Urbanization:** The world's urban areas is increasing by 200,000 people per day, all of whom need affordable housing as well as social and transportation infrastructure
  - **Commoditization:** Technology has rapidly transformed industries and has had the effect of reducing the value added elements of long standing profit pools
  - **Volatility:** Volatility in the global capital markets has re-emerged as monetary policies around the globe continue to shift
  - **Geopolitical Uncertainty:** New models of leadership, the rise of populism and the potential for trade wars destabilize markets
- Historically, highly fragmented industries and eco-systems have been slow to adopt technology and achieve productivity gains

Industry Fragmentation & Complexity

Industry Framework



Source: World Economic Forum, 2016

Rising Construction Costs Across The Globe Will Be Present Ongoing Challenge

Inflationary Environment Pressures Profit Pools

- The costs of building across the globe continue to rise
- Commodity cost and availability will impact pricing and margins
- In addition, volatility in energy, logistics and capital costs will force the industry to either address margin compression or attempt to pass through pricing increases to customers
- Developing trade wars and other nationalist measures have created volatility
  - Uncertainty will likely drive the re-underwriting of construction projects

Global Implications

Global Average Construction Costs/sq. meter

Region	Market	Average cost (USD) per m²
Africa	Kigali	1,117.12
	Kampala	1,058.99
	Johannesburg	848.30
	Dar es Salaam	803.52
	Nairobi	683.49
Asia	Hong Kong	3,487.82
	Tokyo	2,385.71
	Singapore	1,933.90
	Seoul	1,457.01
	Kuala Lumpur	907.35
	Beijing	724.64
	Bangalore	697.43
Australia	Sydney	2,563.73
	Melbourne	2,218.14
	Perth	2,203.43
	Brisbane	2,172.79
Europe	Zurich	3,527.87
	London	3,213.99
	UK South	2,617.28
	Dublin	2,606.38
	UK North	2,474.28
	UK Central	2,411.52
	Scotland	2,329.22
	Paris	2,314.72
	Amsterdam	2,261.36
	Munich	2,207.45
	Northern Ireland	2,107.00
	Madrid	1,843.97
	Moscow	915.46
	Istanbul	809.66
	Warsaw	782.05
Middle East	Doha	2,366.76
	UAE	1,725.70
	Muscat	1,397.44
North America	New York City	3,806.92
	San Francisco	3,549.17
	Seattle	3,013.89
	Houston	2,508.91
	Toronto	2,242.21
South America	Santiago	1,619.49
	Buenos Aires	1,464.98
	São Paulo	1,197.52
	Bogota	885.40

Source: Turner & Townsend International Construction Survey 2017
Source: Construct Connect 2018 Outlook, November 30, 2017

Labor Shortages & Rising Labor Rates Will Pressure Productivity & Profits

Labor Intensive Industries Lack Options

- Labor shortages will continue to plague the construction industry for many years to come
  - Seventy percent of firms said they were having trouble filling hourly craft positions
  - More than half the firms polled by the AGC stated they are having difficulty filling positions for carpenters, plumbers, concrete workers, electricians and bricklayers
- For most jobs, labor, as a percentage, of total job costs approximately:
  - Painting – 85%
  - Sanding/Taping Drywall - 90%
  - Concrete coring – 50%
  - Flooring application– 40%

Supply Shortages Will Pressure Wage Rates

Global Hourly Wage Rates

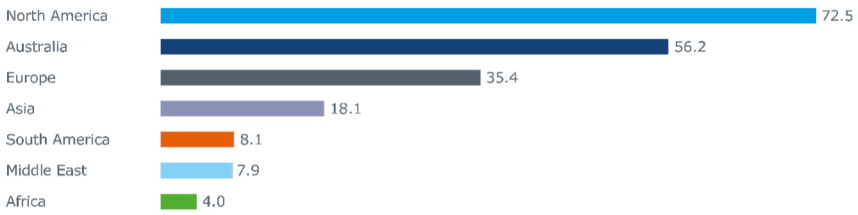


Figure 4
Average hourly wage (USD) by region. North America has the highest labour costs of all of the regions analysed in this year's survey.
Source: ICMS, 2017.

Source: Turner & Townsend International Construction Survey 2017:
Source: Construct Connect 2018 Outlook, November 30, 2017

Closing Productivity Gaps Will Have A Material Impact On Operating Models

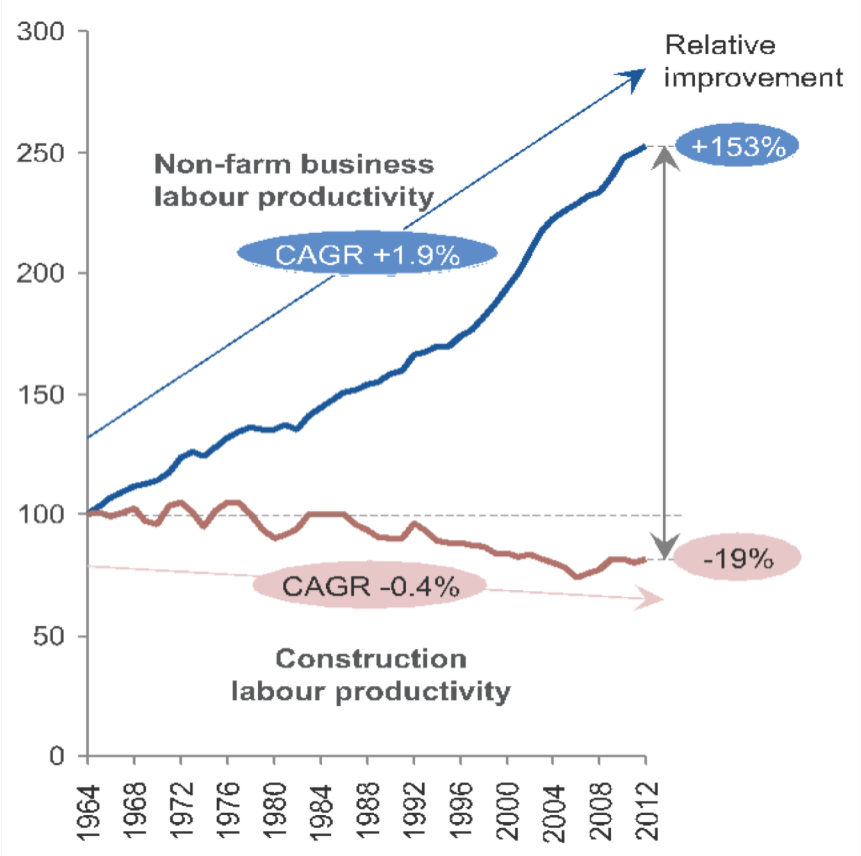
Legacy Model

- Overall productivity in the sector has remained nearly flat for the last 50 years and has focused largely on competitive procurement models and project management

- Construction is the largest consumer of raw materials and other resources
  - Approximately 50% of global steel production and any improvement in productivity and successful adoption of modern innovative processes will have a major impact

Significant Gaps To Other Industries

U.S. Labor Productivity Index



Source: World Economic Forum, 2016

As An Industry, Construction Has Been A Technology Laggard & Plagued By Inefficiencies

Technology Investments Drive Change

- Early adopters can be a source of significant disruption through integrating digital capabilities and proactive strategies to drive higher margins and differentiated performance
  - Large technology companies spent between $20 and $30 billion on AI in 2016 alone, with 90% being spent on R&D and the remaining 10% on M&A. PE and VC investments totaled between $6 and $9 billion

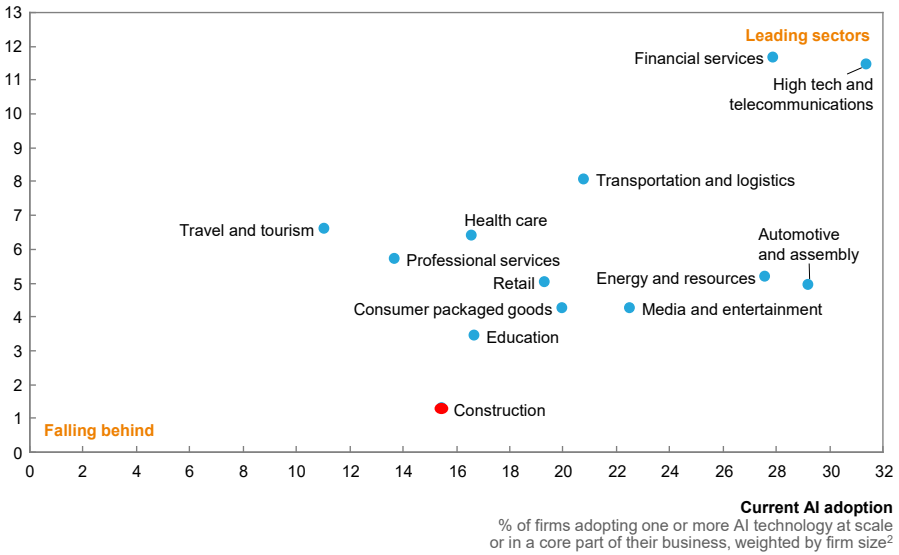
- **Given the size of the industry, small investments made to address eco-system pain points will yield significant results**

Trailing Other Industries

Adoption Survey Results

Sectors leading in AI adoption today also intend to grow their investment the most

Future AI demand trajectory[1]
Average estimated % change in AI spending, next 3 years, weighted by firm size[2]



Current AI adoption
% of firms adopting one or more AI technology at scale or in a core part of their business, weighted by firm size[2]

1 Based on the midpoint of the range selected by the survey respondent.
2 Results are weighted by firm size. See Appendix B for an explanation of the weighting methodology.

Source: McKinsey Global Institute June 2017

Small Productivity Improvements Would Have A Massive Impact

New Models Provide Significant Benefits

- Dramatic productivity improvements can be achieved through processes improvements:
  - Application of "lean" principles and methods could reduce completion times by 30% and cut costs by 15%
  - Enhanced project planning could reduce upfront costs of about 2% to support optimized design will lead on average to life-cycle savings of 20% on total costs
- Building Information Modeling (BIM), a 3D model-based process for architecture, engineering, and construction (AEC) professionals provides insights and tools to more efficiently plan, design, construct and manage buildings and infrastructure.
- Innovation in construction materials and associated solutions are both deep and broad
  - Innovation reduces reliance on existing materials and utilizes the best elements/characteristics to radically innovative materials with entirely new capabilities

Gains In Analogous Industries

Meaningful Productivity Gains

Examples of AI-related business impact from current use cases

	Project	Produce	Promote	Provide
	Accurate demand forecasting, smart sourcing, and enlightened R&D	**Higher productivity and minimized maintenance and repairs**	**Products and services at the right price, with the right message, to the right targets**	**Enriched, tailored, and convenient user experience**
Retail	▪ **1–2% EBIT**[1] **improvement** using machine learning to anticipate fruit and vegetable sales ▪ **20% stock reduction** using deep learning to predict e-commerce purchases ▪ **2 million** fewer product returns per year	▪ **30% reduction of stocking time** using autonomous vehicles in warehouses	▪ **50% improvement of assortment efficiency** ▪ **4–6% sales increase** using geospatial modeling to improve micromarket attractiveness ▪ **30% online sales increase** by using dynamic pricing and personalization	
Electric utilities	▪ Objective to **cut 10% in national electricity usage** by using deep learning to predict power demand and supply	▪ **20% energy production increase** using machine learning and smart sensors to optimize assets' yield ▪ **10–20% EBIT improvement** by using machine learning to enhance predictive maintenance, automate fault prediction, and increase capital productivity		▪ **$10–$30 savings on monthly bills** by using machine learning to automatically switch electricity supply deals
Manufac-turing	▪ **10% yield improvement** for integrated-circuit products using AI to improve R&D process ▪ **39% IT staff reduction** by using AI to fully automate procurement processes	▪ **30% increase of material delivery time** using machine learning to determine timing of goods' transfer ▪ 3–5% production yield improvement	▪ **13% EBIT improvement** by using machine learning to predict sources of servicing revenues and optimize sales efforts	▪ **12% fuel savings** for manufacturers' customers, airlines, by using machine learning to optimize flight routes
Health care	▪ **$300 billion possible savings** in the United States using machine learning tools for population health forecasting ▪ **£3.3 billion possible savings** in the United Kingdom using AI to provide preventive care and reduce nonelective hospital admissions	▪ **30–50% productivity improvement** for nurses supported by AI tools ▪ Up to **2% GDP savings** for operational efficiencies in developed countries	▪ **5–9% health expenditure reduction** by using machine learning to tailor treatments and keep patients engaged	▪ **$2 trillion–$10 trillion savings** globally by tailoring drugs and treatments ▪ **0.2–1.3 additional years** of average life expectancy
Education		▪ Virtual teaching assistants can **answer 40% of students' routine questions**	▪ **1% increase in enrollment** by using a virtual assistant to follow up with applicants	▪ **85% match with human grading**, using machine learning and predictive modelling

1 Earnings before interest and taxes.

Source: McKinsey Global Institute June 2017
Source: World Economic Forum, 2016

Investments In Technology Drive Profitability

AI Innovation Driving Change

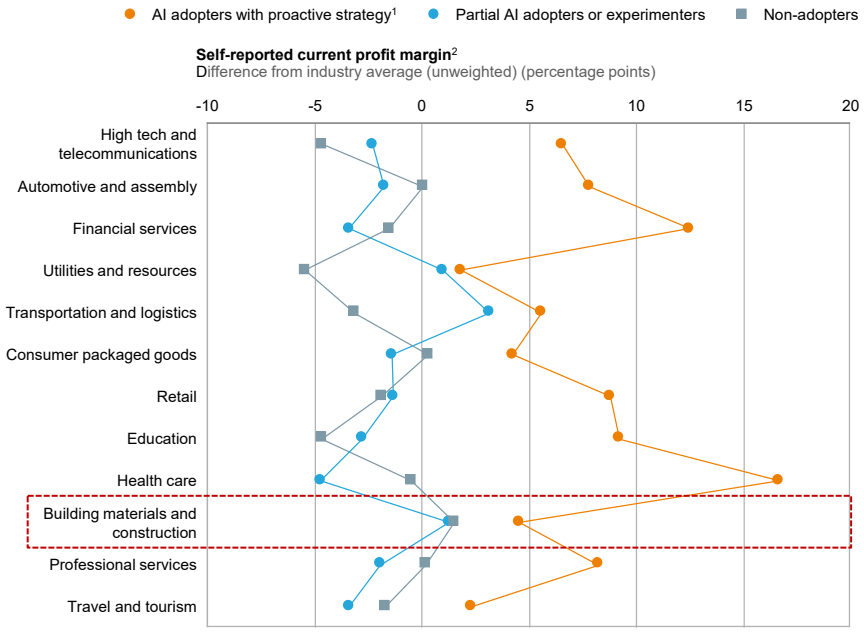
- Amazon's purchase of Kiva for $775 million focused on automated pick and packaging enabled "click to ship"
  - Reduced cycle times by more than 60%
  - Improved inventory capacity by 50%
  - Reduced operating costs by 20%
  - Produced 40% ROI

- Assuming that i) if only 5% of the USD$10 trillion annual global market is addressable by Aryze technologies, and ii) 150 basis points of productivity gains are realized throughout the channel, benefits to the industry approximate $750 million annually

AI Investments Deliver Results

Margin Expansion Opportunity

AI adopters with a proactive strategy have significantly higher profit margins



1 Firms that are big data and cloud services users and report their strategic posture toward AI to be: "Disrupting our industry using AI technology is at the core of our strategy," "We have changed our longer-term corporate strategy to address the AI threat or opportunity disruption," or "We have developed a coordinated plan to respond to the AI threat or opportunity but have not changed our longer-term corporate strategy."
2 Operating profit margin for selected sectors as a share of turnover, for continuing operations and before exceptional items.

Source: McKinsey Global Institute June 2017

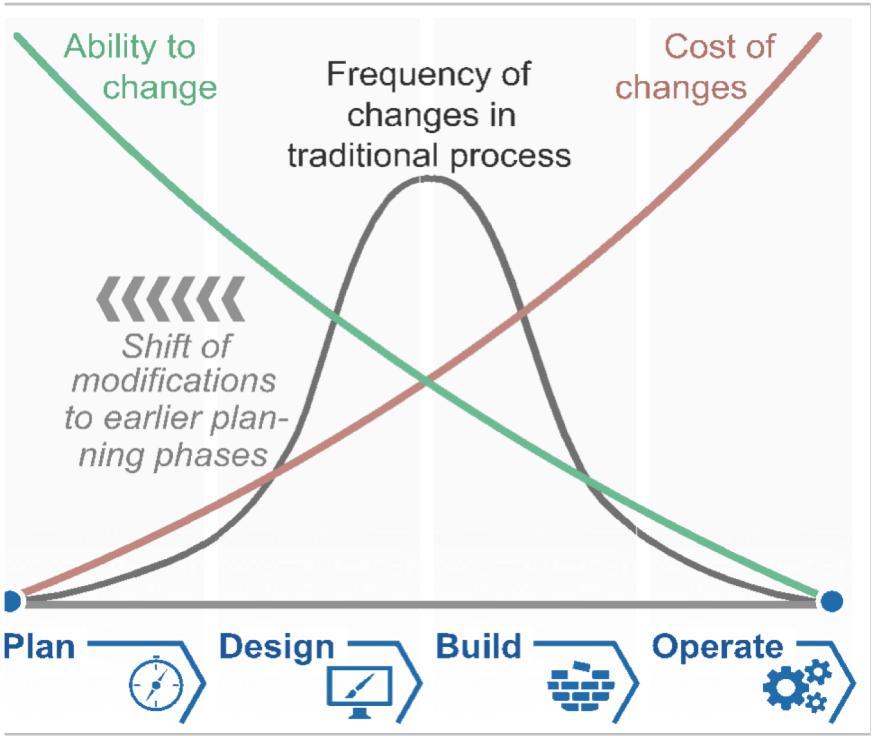
Benefits Of Technology Are Improving Adoption Rates & Market Growth

Automation In Inevitable

- The global market for commercial building automation was US$78BN in 2016 and is expected to grow to US$108.49BN by 2024 (CAGR in excess of 4.5%)
- **Current adoption of automation is only 37% and is expected to rise to 71% by 2022**
- Commercial automation makes sense in the construction industry as nearly all modern construction jobs are mapped in four-dimensional digital models:
  - The intersection of 3D mapping, CAD drawings and AI will becomes critical factors in mitigating failures in design, materials, craftsmanship and inspection
  - The Freedom Tower in New York City took more than seven years to complete. In 2016, a fairly uncomplicated 57-story building was built in 19 days in China

Convergence Becoming A Catalyst

Construction Life Cycle Cost Change Impacts



Source: National Association of Homebuilders, October 2017

Capital Formation Underway

Sophisticated Investors Deploying Capital

- In 2017, SoftBank invested US$850M into Katerra, a start up that leverages state of the art technologies to remove unnecessary costs and time from building development, design and construction
- The venture capital firm Andreessen Horowitz is actively investing in robots if focused on boosting productivity for the construction industry
  - "I think the opportunity and the challenge for the tech industry and Silicon Valley is for us to figure out how to have a much bigger impact in the slow-growth sectors [construction, health care and education] of the economy"

Existing Applications & Use Cases

Attributes	Comments
Pre-Fabrication	• Factory-built homes are far more popular in Sweden and Japan, comprising 40% and 16% of residential buildings, respectively • Construction Robotics, a New York-based startup, has invented a bricklaying robot called the SAM100 which is able to lay around 2,000 bricks per day, a massive 400% increase in productivity
Collaboration	• Development of collaborative robotics (matching humans with machines) will improve efficiency, safety and mitigate defects • Development and sophistication of sensor technology enables the collaborative environment • Creating a firm division of labor between humans and robots will assign work to the most effective and efficient resource to drive productivity enhancements
Mobility	• Robotics is in the process of migrating from automation systems to mobility • Mobile robotics are more scalable and provides more flexibility to invest and deploy based upon individual use cases, requirements and resources

Source: Recode June 6, 2017

ARYZE

III. Business Overview & Go-To-Market

The Business Model Is Driven From Five Foundational Principles

The Aryze business model has been built from a set of core operating principles. These components support delivering efficiencies, protecting profit pools and creating competitive advantage for key partners.

I. **Technological Advantage**: Ensure that technologies deliver against defined objectives and use cases and provide ongoing capital investment in research and development, product upgrades and new solutions maintain technological superiority

II. **Process Discipline**: Build a culture focused on repeatable process, project management discipline and data collection and analysis to support both growth and service delivery

III. **Operating Flexibility:** Utilize KPI/metrics to actively manage the tradeoffs related to price, volume, mix and to support scale, refinement of the business model and to protect and preserve optionality

IV. **Capital Allocation:** Leverage KPI and operating flexibility to develop and adhere to a set of capital allocation strictures that support and align decisions around growth, cash flow, returns on capital and monetization

V. **Maintain The Moat:** Aggressively build, manage and maintain commercial relationships with market leading partners around the globe

We Have Also Embedded Operating Methodologies Of Admired Companies

The operating model leverages proven approaches utilized by efficient, rapidly scalable and highly profitable cohorts

ARYZE PHILOSOPHY

- **Complexity Reduction:** Develop robots premised on the same core operating mechanics, parts and UI to simplify all functional areas of the business
- **Standardized Scaling:** Utilize uniform set of methodologies to support expansion, deployment and management of markets
- **Own, Dimensionalise & Monetize Data :** Aggregate, analyze and monetize data across the entire ecosystem to provide incremental insight and value to Aryze and its partners

EMULATED APPROACH

- **Southwest Airlines:** One plane, one set of parts/inventory, fully interchangeable pilots and crew
- **Uber Technologies:** City by city roll out based upon regulatory complexity and a uniform set of methodologies, policies, procedures and metrics
- **Palantir Technologies:** New methods of data aggregation and analytics to support incremental actionable insights across multiple and diverse use cases

Aryze Will Bring Productivity Gains To The Global Commercial Construction Market

Aryze is developing and deploying technology solutions for the commercial construction value chain that deliver productivity enhancements and mitigate the impacts of human error

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[1] Current portfolio of applications only

Robotic Applications Will Drive Material Productivity Gains

Key Applications

- Aryze's applications serve markets for new construction as well as remodeling, tenant replacement and recurring maintenance
- Initial robotics applications in painting/spraying, concrete coring and flooring address three key dimensions:
  - Labor/time intensive
  - Repetitive processes
  - High degree of human error
- The Aryze applications have been designed specifically to address large(r) commercial construction projects where duration and scale efficiencies are optimized and will:
  - Reduce re-work, change orders and and labor defects
  - Support "after hours" work without time-and –a-half
  - Reduce collateral costs e.g. insurance

Illustrative Painting Comparative[1]

Process	Manual	Robotics	Productivity Improvement
"Ups" Set/ Clean/ Touch*	• ~30 man hours for taping, masking and other coverage	• ~25 hours, going down to 15 hours as a result of AI	• ~17% at inception going to 50%
Wall Body	• ~200 man hours @ 4 man crew/6 days/8 hours per day	• ~80 hours going down to 40 hours**	• ~60% at inception going to 80% or greater
Doors, Windows, Trim & Obstacles	• ~150 man hours @ 2 man crew/8 hours per day	• ~ 150 hours going to 80 hours**	• 0% at inception going to 50% or greater
Total Time	• ~380 man hours assuming no re-work	• ~255 hours going down to ~130 hours	• 20% at inception going to > 65%

[1] Assumes 20 sq. ft. of wall, based on market research and interviews
* Touch up **not** included as requirements are highly variable by job
** Assumes manual backrolling which accounts for 65% of man hours
*** Production models will address and resolve

Source: RS Means/2018 National Cost Estimator & Internal Analysis

Product Development Will Create Material Advancements In Speed, Capability & Quality

Continuous Improvements Painting Illustration

- Based upon our experience with other applications, Aryze believes that the capabilities and efficiencies of its robotic applications will improve materially over time
  - **Speed**: Improvements in efficiency that should deliver per square foot pacing up to 3x that of a manual crew
  - **Trim & Related**: Ability to deliver faster and more accurate trim work that will improve times by 2x of manual alternatives
  - **Mobility:** Easier navigation of job sites will reduce downtime and create additional benefits
  - **Special Finishes:** Ability to deliver greater finish qualities as well as to introduce patterns, designs and other materials
  - **Touch Up:** Accelerate and simplify the completion of jobs following other trades

Product Development Progression [1,2]

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Source: Internal Analysis

Current Go-To-Market Hypothesis

Business Rationale

- At launch, we expect to act as a technology enabled master sub-contractor to provide services to our core customers
- We believe that this approach is critical as it will enable Aryze to control product quality, branding and service delivery to our customers and remain in control of the critical attributes to operate the business
- Over time, we expect that the business model may shift based upon market, scale, regulatory and/or customer demands. We have contemplated other approaches including:
  - Robots As A Service/B2B
  - B2B2C
  - Franchise/Master Development

Routes To Market

Participant	Benefit Derived
Developers	• Deliver projects faster and at lower costs • Incremental returns and IRR become source of competitive advantage
Asset Owners	• Improve speed and pace of build outs, improvements and routine maintenance • Reduction in maintenance costs yields improved cash flows and differentiated returns for investors and owners
Property & Asset Managers	• Mitigates risks and delays in finding capable crews to perform the work • Lower costs improve margins and/or lower costs to owners • Reduces burden on tenants during repair/maintenance • Accelerates turning space between tenants

Addressable Market & Segmentation

Market Attributes

- Aryze will seek to develop markets that both possess key asset class attributes and, where possible, have regional proximity
- Aryze will segment markets in key categories based on both asset class and use case
- Minimum threshold painting specifications **at launch**
  - 15K sq.ft. of wall space but focus on spaces > 40k sq. ft.
  - Clean line window trim
  - Drop Ceiling at 10" or less or Open Ceiling with full access (no HVAC)
  - Clear perimeter around surface

Asset Class Segmentation & Attractiveness

Asset Class	New Construction	Re-Development	Recurring Maintenance
Large Scale Office	●	●	●
Shopping Malls	●	●	●
Hospitality	●	●	●
Multi-Family High Rise	●	●	●
Multi-Family Other	◑	◑	◑
Self Storage	◕	○	◑
Parking	◑	○	◑
Hospitals	◕	◔	◕
Airport/Rail & Transportation	●	◑	◕
QSR	◔	◑	○
Industrial	◕	◕	◑

○ Unattractive Attributes ● Highly Attractive Attributes

Growth Will Be Concentrated In Markets Based Upon Key Attributes

Market Prioritization

- Initial deployment will be in Boston given the scale of the metropolitan and surrounding markets and the proximity to the Ascend lab and resources
- Entering additional markets will be considered once threshold levels of scale and capability have been achieved
- Additional markets will be entered if i) the markets possess the right combination of attributes ii) are not highly unionized iii) do not face burdensome regulatory frameworks iv) follow existing customers/partners, and/or v) possess other strategic rationale

Large Market Potential

Potential Domestic Markets

Potential Global Markets

Revenue & Pricing Strategy

Approach

- Aryze intends to price its applications either at or below the prevailing market in order to accelerate adoption and increase the profitability and efficiency for its key channel partners
- The Aryze model is built upon very conservative utilization rates (after accounting for transportation, repair & maintenance, change overs and slack inventory) to support additional pricing flexibility and to add level of conservatism to the revenue forecasts
- **Modest improvements in pricing and/or utilization will produce significant revenue benefits while affording the opportunity to use price and/or utilization to mitigate downside risks**

Revenue & Utilization Sensitivities

PAINTING/SPRAYING REVENUE SENSITIVITY PRICE & UTILIZATION

$/Sq Ft	45%	55%	65%	70%	75%
$ 1.30	47,627	58,211	68,795	74,087	79,379
$ 1.19	43,298	52,919	62,541	67,352	72,163
$ 1.08	39,362	48,109	56,856	61,229	65,603
$ 0.97	35,425	43,298	51,170	55,106	59,042
$ 0.87	31,883	38,968	46,053	49,596	53,138

CORING REVENUE SENSITIVITY PRICE & UTILIZATION

All In $/Core	50%	60%	70%	75%	80%
$ 107.84	37,619	45,143	52,667	56,429	60,191
$ 98.04	34,199	41,039	47,879	51,299	54,719
$ 89.13	31,090	37,308	43,526	46,635	49,744
$ 80.21	27,981	33,577	39,174	41,972	44,770
$ 72.19	25,183	30,220	35,256	37,775	40,293

TILE REVENUE SENSITIVITY PRICE & UTILIZATION

$/Sq Ft	45%	55%	65%	70%	75%
$ 5.75	52,888	64,640	76,393	82,270	88,146
$ 5.23	48,080	58,764	69,448	74,790	80,133
$ 4.75	43,709	53,422	63,135	67,991	72,848
$ 4.28	39,338	48,080	56,821	61,192	65,563
$ 3.85	35,404	43,272	51,139	55,073	59,007

Source: Internal analysis –Aryze_FM_v75.F_180801

Repeatable Processes Will Reduce Operating Complexity & Support Developing Scale

Deployment Model

- The operating model is currently built from a unit based hub & spoke methodology that aligns assets, services and growth in a uniform and disciplined manner

- We have contemplated that each unit will consist of:
  - One type of robotic application (paint/coring or tile)
  - Operating team to transport, manage, operate the robot on site, including a technician (an in some case perform limited painting or other site work)
  - Transportation rig (van or truck/trailer) capable of carrying and storing two robots

- Limited warehouse space to support assembly, repair, maintenance (including MRO inventory) and storage

Other Modular Components

Attributes	Comments
Supply Chain	• Leverage established relationships between Ascend and key suppliers • Utilize stock components for as many non-critical components as possible
Manufacturing, Assembly & Maintenance	• Limited number of specialty parts available from four global manufacturers • Aryze employees will be trained to assemble and robots in leased warehouse space
Field Labor	• Labor requirements reduced dramatically as robotic capabilities are expanded • Migrate to Operations Center model to reduce technician time and cost
Overheads	• Technology enabled model designed around flexibility and variable costs • New market expansion follows same footprint
Technology	• Organized filed data mining, performance tracking integrated with KPI management • Easy to use UI to facilitate delivery and data capture • Security assets embedded in robotic structure – “dumb” robot with “smart” data transfer

Technology Infrastructure & Approach

Technology Backbone

- The Aryze model is based upon leveraging technologies across the platform, and as a result, a significant portion of P&L is devoted to maintaining technological superiority and to capturing, analyzing and utilizing data

- Research, Development and IP protection will be done by our partner Ascend in order to reduce complexity and avoid duplication of effort. Aryze has negotiated an exclusive, perpetual and royalty free agreement for the use of the technology in both core and adjacent markets

- The Aryze model is fact based and data driven and we will utilize both new and traditional approaches, enhanced through our AI engine, to support managerial decisions

Core Components

Participant	Rationale
Research & Development	• Leverage existing infrastructure and expertise to develop, improve and commercialize robots and AI • Invest in new technologies and products in a methodical manner • Invest at the same or similar level as if Aryze was an independent company • R&D spend has been developed based on an "equivalent engineering" requirement
Decision Support Technology	• Initial design and focus on data, access, integrity and comparability • Utilize cloud based systems wherever possible to reduce costs and complexity • Ensure the ability to share data across systems • Develop management reporting capabilities supported by KPI on a daily, weekly, monthly and quarterly basis • Build muscle in key control areas to support scaling, capital allocation and the requirements of current and future investors

Training & Maintenance Partnerships Support Scalability & Reduce Frictional Costs

Deployment Model

- Aryze intends to partner with established trade schools to develop the training materials, methodologies and development of resources to support the growth of the business
- Aryze intends to enter into a revenue/equity partnership/sharing agreement with training partners to align incentives and ensure "portability" in the training of robotic operators, user interface managers and mechanics
- **Aryze intends to grant a significant portion of the economic interests in, and to, the training platform to the unions likely affected in order to support the retraining and skill development of those impacted by migration to robotic trades**

Potential Training Partners

Institution	Attributes
Universal Technical Institute	• National footprint • Focus on automotive, marine and welding • Public currency
Lincoln Technical Institute	• National footprint • Technology and adjacent training in HVAC and building trades
Fortis College	• National footprint • Technology and adjacent training in HVAC and building trades
DeVry	• Scale provider with multiple degree options and adjacent/complementary programs • Large established institution
Ivy Technical Institute	• Advanced Automation & Robotics degree already developed • 17 campuses in contagious Midwestern geographies

IV. Leadership

Aryze Leadership (1 of 2)

Professional	Abbreviated Biography
David Askey Founder & Chief Technology Officer	David is a founder Ascend Robotics. Ascend designs and builds robots intelligently adapt to the workplace environment and in coordination with humans. Ascend's robots replicate the fine motor skills necessary to manipulate and retrieve components, provide production line supply and deliver automate kitting. Prior to Ascend, David was a co-founder and Chief Business Development Officer at Energid, where he was responsible for key strategic initiatives, guidance, and market development of sensor-driven robotic systems. A core focus was driving the definition and shaping of new products to meet market needs. For the Energid subsidiary, Robai, David provided key product guidance for the Cyton compact robot arms, with particular focus on the industrial production and device testing markets. David has extensive experience in object tracking, image-based modeling, and video compression. David has held senior positions managing engineering teams, leading technology strategy, and directing R&D at leading technology and imaging companies both in the US and Europe. David has B.S. and M.S. degrees in Electrical Engineering from Massachusetts Institute of Technology.
Robert Cohanim Founder & Senior Advisor	Robert Cohanim is the co-founder of Aeon Construction Consultants. Aeon specializes in both General Contracting and construction consulting for large and mid-sized national companies. Aeon is a process and efficiency based model serving clients such as i) Level Office, the second largest office share company in the world ii) 7-Eleven, and iii) McDonald's.

Aryze Leadership (2 of 2)

Professional	Abbreviated Biography
David Sweig Chief Executive Officer	David is an experienced operating executive and investment professional with a +25 year track record of driving transformation, change and value creation at companies around the globe on behalf of management teams and/or their financial sponsors. David's career encompasses senior leadership positions at Bain & Co, where he co-headed the Corporate Renewal Group, Piper Jaffray, where he was a senior leader in their leveraged finance practice and Giuliani Capital/Ernst & Young where he ran corporate finance, operational, and strategy businesses as well as headed the transactional consumer practice. David earned his MBA from Northwestern University's J.L. Kellogg Graduate School of Management and a Bachelor of Arts degree from Tufts University.
Shakeel Abdul Chief Financial Officer	Shakeel has a +20 year career as an advisor, investment banker, private equity investor and entrepreneur. He is the co-founder of Harmony Parking Partners, a U.S./China based private equity firm focused on developing parking garages in mainland China. In addition, he is the co-founder of a healthcare technology company. He also served as a Vice President at the private equity firm of GTCR, a Senior Vice President at Macquarie Capital Advisors LLC and Director at Giuliani Capital Advisors LLC. Our CFO is a Certified Public Accountant (CPA) and Chartered Financial Analyst (CFA) and holds a BS from Indiana University.

Leadership Will Be Supported By An Unparalleled Board Of Advisors[1]

Advisor & Background	CORE COMPETENCE						
	Real Estate & Construction	Capital Formation	Business Operations & Legal	Corporate Governance	Mentorship & Leadership	Robotics & Technology Innovation	Social Disruption & Workforce
Mr. Samuel Guren Venture Capital Investor	◔	●	●	●	●	○	◔
Mr. John Kispert Serial Public Company CEO, Chips & Technology	◑	◕	●	●	●	●	◕
Mr. Greg Kranias Private Equity & Real Estate Investor	●	●	◕	●	●	○	◔
Mr. Joseph Massey International Business & Trade	◔	◑	◑	◕	●	◔	◑
Mr. David Mindell[2] Technology & Robotics	○	◑	◕	◔	◕	●	●
Ms. Charlene Stokes-Schwartz[2] Workforce Retraining	○	◑	◔	◔	◑	●	●
Stephen Tomlinson, Esq. Real Estate Private Equity	●	●	●	●	●	◔	◔

● Significant Expertise ○ No Material Expertise

[1] Please see Appendix D for professional biographies
[2] Awaiting final confirmation

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V. Investment Considerations

Basis Of Presentation

Aryze endeavored to build the business model hypothesis with bias towards conservatism. As a result, the benefits of pricing, utilization and scale have not been accounted for in our forecast. The philosophical underpinnings in our approach include:

I. **Revenue:** Pricing has been planned using a weighted average methodology. Pricing over the forecast is believed to be at, or below, the prevailing market rate for the services being provided. Pricing levels do NOT change throughout the forecast

II. **Utilization:** Forecast at a fixed rate of available hours. Hours per application do NOT change throughout the forecast period

III. **Robotic Costs:** Forecast to include only modest cost downs resulting from scale purchasing. Tariff adjustment of an incremental 20% of base costs remains throughout the forecast period

IV. **Field Operations:** Costs are included in COGS and are driven by number of units in operation. Cost per unit grow in 2021 and 2022 directly as a result of new market expansion

V. **SG&A**: Costs grow based upon, and in some cases ahead of, revenues and units in production. Overheads have been designed to benefit from improved operating leverage

Aryze Is A Compelling Investment

Investment Highlights

- Highly scalable technology enabled model
- First mover and competitive advantages in key applications
- Large addressable market with multiple pain points and in need of transformation
- Multiple revenue streams
- Multiple adjacent market applications
- Strong cash flows and flexible corporate design supports multiple financial and structuring options

Financial Profile

	2018	2019	2020	2021	2022
Revenue	$ 84,929	$ 10,146,940	$ 31,218,430	$ 74,998,878	$ 152,326,002
COGS	819,123	8,300,332	17,348,196	36,274,723	63,109,301
Gross Margin	(734,194)	1,846,608	13,870,234	38,724,155	89,216,701
SG&A	836,993	7,791,179	13,487,524	24,305,934	39,008,662
EBITDA	(1,571,187)	(5,944,570)	382,710	14,418,222	50,208,039
Net Income	$ (1,005,560)	$ (3,804,525)	$ 244,934	$ 9,227,662	$ 32,133,145
Gross Margin %	-864.48%	18.20%	44.43%	51.63%	58.57%
SG&A %/Sales	985.52%	76.78%	43.20%	32.41%	25.61%
EBITDA Margin	-1850.00%	-58.58%	1.23%	19.22%	32.96%
Net Income %	-1184.00%	-37.49%	0.78%	12.30%	21.09%
YOY Rev Growth	n/a	11947.6%	307.7%	240.2%	203.1%
Productive Units (EOY	4	27	70	155	292
Rev/Robot	21,343	372,473	445,420	484,324	521,363
Rev/Robot Growth	n/a	1645.2%	19.6%	8.7%	7.6%
R&D %/Revenue	2.50%	9.92%	6.88%	7.36%	7.84%
Sq Ft Painted (a)	78,820	9,339,694	26,522,346	55,733,190	100,559,655
Average Sqft/Job	-	25,000	25,000	35,000	45,000
Number rof Jobs	-	374	1,061	1,592	2,235
Cores Completed (a)	-	-	22,190	102,736	222,540
Sq Ft Tile Laid (a)	-	-	26,528	905,042	3,659,496

(a) Based on average units in operation

Please refer to the Disclaimer on slides i & ii
A: Based on average units deployed during the year
Source: Internal analysis –Aryze_FM_v75.F_180801

Critical Assumptions (1 of 4)

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Critical Assumptions (2 of 4)

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Critical Assumptions (3 of 4)

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Critical Assumptions (4 of 4)

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Annual Profit & Loss Statement

	2018	2019	2020	2021	2022
Revenues					
Painting/Spraying	$ 84,929	$ 10,063,520	$ 28,577,828	$ 60,052,512	$ 108,353,029
Coring	-	-	1,977,669	9,156,310	19,833,854
Tile	-	-	126,007	4,298,950	17,382,604
Other	-	-	-	110,757	3,769,731
Data/AI & Other	-	83,420	536,926	1,380,347	2,986,784
Total Revenues	84,929	10,146,940	31,218,430	74,998,878	152,326,002
Cost of Goods					
Robotics Inventory	429,474	2,431,895	4,547,684	9,053,053	14,955,947
Warehouse, Transport & Labor	389,650	5,868,437	12,800,512	27,221,670	48,153,354
Total Cost of Goods	819,123	8,300,332	17,348,196	36,274,723	63,109,301
Gross Margin	(734,194)	1,846,608	13,870,234	38,724,155	89,216,701
Operating Expenses					
Compensation & Benefits	603,516	4,758,984	7,558,594	10,764,844	13,893,750
Rent & Overheads	26,163	243,500	542,600	1,094,200	1,955,400
Third Party Providers	55,760	352,330	826,000	1,475,000	3,385,500
R&D Expense	2,123	1,006,352	2,147,705	5,521,390	11,947,137
Technology	68,588	792,263	1,453,500	3,705,000	6,195,000
Travel & Diligence	77,844	622,750	934,125	1,245,500	1,556,875
Miscellaneous	3,000	15,000	25,000	500,000	75,000
Total Operating Expense	836,993	7,791,179	13,487,524	24,305,934	39,008,662
EBITDA	(1,571,187)	(5,944,570)	382,710	14,418,222	50,208,039
Depreciation	-	-	-	-	-
Interest on Debt	-	-	-	-	-
Interest on Preferred A	-	-	-	-	-
	-	-	-	-	-
Pre Tax Income	(1,571,187)	(5,944,570)	382,710	14,418,222	50,208,039
Tax@ 36.00%	(565,627)	(2,140,045)	137,776	5,190,560	18,074,894
Net Income	$ (1,005,560)	$ (3,804,525)	$ 244,934	$ 9,227,662	$ 32,133,145

Please refer to the Disclaimer on slides i & ii
Source: Internal analysis –Aryze_FM_v75.F_180801

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Appendix A: Technology Overview

Technology Overview (1 of 5)

Ascend Robotics

- Aryze has partnered with Ascend Robotics LLC in the development of the commercial construction applications and associated AI

- Ascend is a market leading robotics firm:
  - Designs and builds robotic applications that intelligently adapt to the customer's environment and learn how to manipulate objects within the environment
  - Enables robots to retrieve components, provide production line supply, and automated kitting
  - Permits robots to learn and adapt to the environment and people around them can work closely alongside people and interact with people to perform tasks as a team more efficiently, more consistently, and more safely than a robot or person could perform alone

Analogous Proof Points

Client	Comments
Autonomous Kitting	• Develop robotic application, AI engine and UI for automated inventory handling, inspection and kitting to support labor efficiencies at a global top 50 employer and member of the Fortune 500. Labor savings generated of 80% and improved production capacity by 57%
Nuclear Reactor Inspection	• Developed robotic application to conduct the in-situ maintenance and safety examination of a nuclear fusion reactor to avoid costly downtime and other safety related matters
Autonomous Oil Rig	• Developed robotic control application and UI for the first autonomous oil drilling platform. The autonomous rig dramatically improved safety, reduced labor by 80% and reduced recurring operating costs by ~$50 million annually
Automated Content Extraction	• Developing application AI engine and UI to support the conversion of unstructured data into structured data for a global insurance company to support regulatory and compliance and to improve capacity by 25% and labor savings of 80%

Technology Overview (2 of 5)

Key Objectives

- Utilize robotics applications to drive significant productivity improvements across highly manual construction trade applications
- Establish platform from which to utilize AI and other machine learning applications to support the digitization of the commercial construction supply chain
- Utilize AI and other machine learning applications to support closing other value gaps, reduce the impact of human error and related process improvement (e.g. AI driven inspection)

Pro-Forma Efficiency Gains

Application	Benefits
Painting	• Respond to labor shortages, eliminate human error and drive efficiency • **Productivity gains at outset 35%** • **Full potential efficiency gains >70%**
Coring	• Respond to labor shortages, eliminate human error in location and drilling and drive efficiency • **Productivity gains at outset 35%** • **Full potential efficiency gains >70%**
Tile	• Respond to labor shortages, eliminate human error in location and drilling and drive efficiency • **Productivity gains at outset 35%** • **Full potential efficiency gains >75%**
Other	• Address other labor dependent and high error rate trades • Utilize AI to perform on-site inspections prior to performing work • Eliminate or mitigate other inefficiencies

Technology Overview (3 of 5)

Alpha & Alpha+ Deliverables

- **Alpha outcomes**
  - Demonstrate component functionality
  - Demonstrate integrated system functionality
  - Paint single wall with vertical strokes only
  - Productivity of 10’ vertical stroke in 16 seconds
- **Alpha + outcomes**
  - Paint single wall
  - Tune application evenness of coverage
  - Develop “top coat” evenness
  - Tune edge precision
  - Eliminate ceiling trim line
  - Tune baseboard precision/proximity
  - Vertical strokes only
  - Productivity of 10’ vertical stroke in 13 seconds (~20% gain)

Beta Deliverables

- **Beta outcomes**
  - System functionality to deliver jobs in production environment
  - Navigate amongst multiple walls per room
  - Production quality evenness for primer and “top coat”
  - Only walls with no ceiling trim line
  - Demonstrate vertical range of motion stroke range 3.5” above floor to 10’1”
  - Demonstrate horizontal stroke range +/- 10”
  - Productivity of 10’ high x 12’ long wall in under 7 minutes

Technology Overview (4 of 5)

Prototype Specifications & Deliverables | Development Calendar & Component Lifecycle

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Note 1: Not exhaustive and additional information available during diligence

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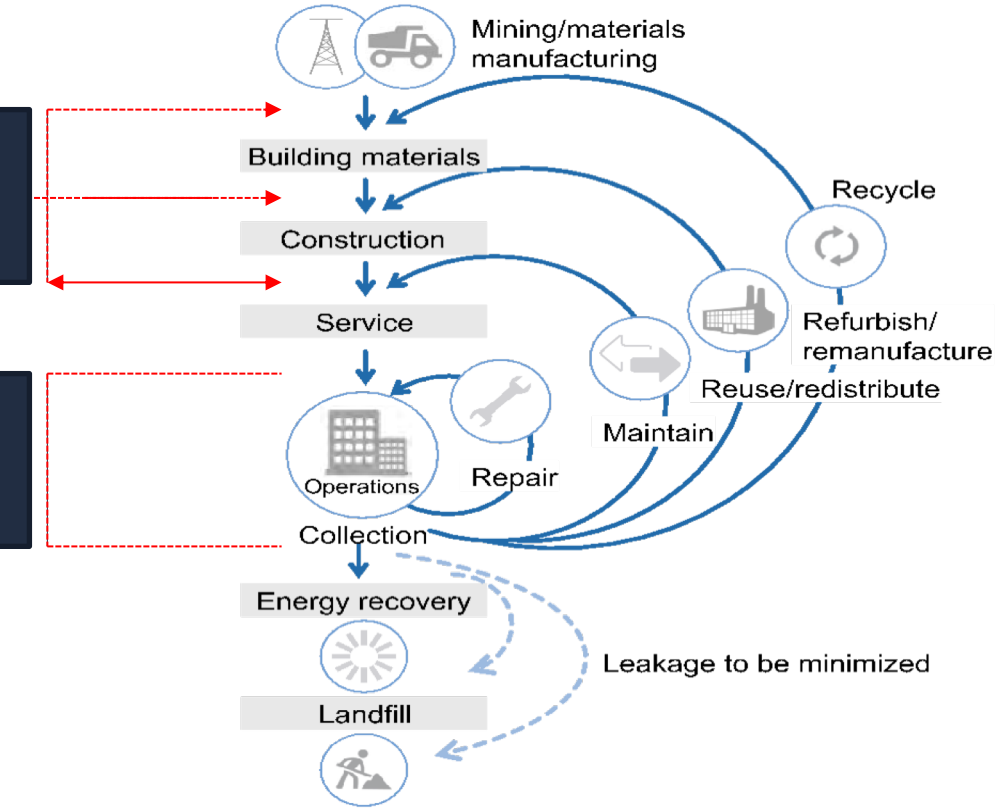
Appendix B: Adjacent Applications

Digitization & AI Can Disrupt The Commercial Real Estate Eco-System

Creating a scale digitization platform at the point of delivery will serve as the conduit to transforming and redesigning the way commercial construction projects are designed and delivered. Partnering, acquiring or establishing commercial relationships with leading commercial real estate platforms will accelerate adoption and change

Digitization from the point of install will be matched against "take off" data to support the development of

Digitization supports efficiencies in operations, repair, maintenance and servicing recurring turnover



Full Potential Opportunities Span Multiple Adjacencies

The Aryze platform can be extended into multiple markets as well as deployed against adjacent applications/use cases that will drive the digitization of global construction markets

ADDITIONAL TRADES

- Electrical Wiring
- Drywall & Sanding
- Plumbing Infrastructure
- 3D printed componentry

SUPPLY CHAIN & PROCURMENT DIGITIZATION

- Commercial purchasing portal enabled through digitized of "take off" processes and matching buyer requirements with sellers to promote pricing transparency and a more efficient supply chain
- Unified process supports JIT supply chains, reduces waste and permits adjustment to work-flows based upon supply chain interruptions

PRODUCTIVITY APPLICATIONS

- Just In Time supply chain enablement
- Workforce scheduling that adjusts to changes and other disruptions in process flows in order to reallocate/reschedule labor

DATA AGGREGATION & MONETIZATION

- Utilize data to support BIM, architectural and related engineering redesign/technologies
- Utilize data and AI to support improved building automation, efficiency and performance of key systems such as HVAC
- Digital CAD/AI and scanning inspections at various points in the construction process with respect to code compliance and defect detection

Appendix C: Industry Participants

Industry Participants (1 of 2)

Company	Description
Construction Robotics	SAM100 OS 2.0, can lay up to 350 bricks per hour, and it can tackle either a standard brick pattern or soldier courses, with just a little help from a human technician who inputs instructions. SAM has already worked on prominent projects such as The Lab School in Washington, DC, and with major contracting and masonry firms such as Clark Construction Group (/companies/clark-construction/) and Wasco, picking up the slack on tedious projects as the nation's bricklaying workforce ages and shrinks.
Katerra	Essentially a one-stop shop for buildings, from architectural design through the actual construction. It obtains the materials itself and creates components at its factory in Phoenix. It has formed a network of suppliers around the world grown from a start-up with an unusual approach to the construction industry into a company with $1.3 billion in bookings. Raised $865 million in a new round of financing led by SoftBank's Vision Fund.
Esko Bionics	Specializes in the field of wearable robotics, creating everything from exoskeletons to improve the mobility of those with spinal-cord injuries to robotic arms that can reduce the repetitive-stress injuries inherent in physical construction work by absorbing most of the bucking and kicking of heavy-duty tools.
Caterpillar	The company invested with drone-software developer **Airware** to improve and automate job-site analytics and gain better insight into the the performance its heavy equipment in various conditions. And, back in October of last year, it invested in **Clearpath Robotics**, which is working on autonomous solutions for manufacturing facilities.

Source: Market research

Industry Participants (2 of 2)

Company	Description
Cazza	Set out to revolutionize the entire construction process through 3-D printing. The company is designing "minitanks" a 3-D printing system capable of layering 2,153 square feet of concrete per day, which can be used to build nearly "any structure you look at that was conventionally constructed." The 3-D printing method will drastically reduce the amount of time and labor needed for construction projects, and it will get its first big test soon, for Cazza recently made headlines after announcing plans to build the world's first 3-D-printed skyscraper, in the United Arab Emirates, where the company is headquartered.
Piaggio	Small robots or drones designed to carry out the heavy lifting on job sites. The company is focused on future mobility, and its first product is Gita, a 22-pound robot designed to follow its owner around carrying cargo, mapping its surroundings as it goes so that it can make return trips independently,
Full Stack Modular	Prefabrication and modularization to enhance the efficiency of certain construction projects. **Full Stack Modular** focuses on modularization on different scales, from prefabricated panels to modular bathrooms to larger modular apartment buildings.
Built Robotics	Raised $15M Series A in order to utilize latest sensors from self-driving cars, retrofit them into proven equipment from the job site, and develop a suite of autonomous software designed specifically for the requirements of construction and earthmoving.
Doxel	Doxel combines artificial intelligence with robots and LIDAR to scan construction sites and identify problems. Doxel uses a combination of aerial drones and ground robots, equipped with HD cameras and LIDAR that can see through walls, to comb over every inch of a construction site every day. Data is analyzed by an AI and compared to plans, blueprints, and schedules to see whether everything is going smoothly. If something is built or installed wrong, or if the workers are behind schedule, the AI can detect and highlight it.

Source: Market research

Painting Robots

Mist

- In development by a group of graduate students at the University of Waterloo, Canada
  - Unable to determine if there has been any funding raised and its commercial readiness

PictoBot

- Developed by Nanyan Technology University in Singapore
  - Designed specifically for buildings with high walls (>10m)]
  - Weighs 1.5 tons when full of paint

Appendix D: Advisory Board

Unparalleled Board Of Advisors

Advisor & Background	CORE COMPETENCE						
	Real Estate & Construction	Capital Formation	Business Operations & Legal	Corporate Governance	Mentorship & Leadership	Robotics & Technology Innovation	Social Disruption & Workforce
Mr. Samuel Guren Venture Capital Investor	◔	●	●	●	●	○	◔
Mr. John Kispert Serial Public Company CEO, Chips & Technology	◑	◕	●	●	●	●	◕
Mr. Greg Kranias Private Equity & Real Estate Investor	●	●	◕	●	●	○	◔
Mr. Joseph Massey International Business & Trade	◔	◑	◑	◕	●	◔	◑
Mr. David Mindell[1] Technology & Robotics	○	◑	◕	◔	◕	●	●
Ms. Charlene Stokes-Schwartz[1] Workforce Retraining	○	◑	◔	◔	◑	●	●
Stephen Tomlinson, Esq. Real Estate Private Equity	●	●	●	●	●	◔	◔

● Significant Expertise ○ No Material Expertise

[1] Awaiting final confirmation

Mr. Samuel Guren

Expertise	Abbreviated Biography
Venture Capital & Capital Formation Scale Commercialization Business Operations & Strategy Corporate Governance	Sam started in the venture capital/private equity business in 1975, with Continental Illinois Venture Corporation (CIVC), a subsidiary of Continental Bank (Chicago). During his tenure with CIVC, the firm's investments ranged from Apple Computer to Yoplait to Kohlberg, Kravis & Roberts. KKR took the firm into the buyout investment business. In 1981, Sam was recruited by William Blair to co-found and manage William Blair Venture Partners (WBVP). He grew the business to six professionals during three funds. Investments ranged from the founding of The Sports Authority to the buyout of Sanford Corporation to investments in various technology, healthcare and cable television companies. Robert Baird recruited Sam in 1996 to manage the Baird Capital funds. While there, BCP grew from two to five professionals with a focus on outsourcing and temporary staffing. Sam joined Allied Capital in 1999, and stayed through 2002. He managed the Chicago office, and was on their Investment and Operating Committees. Sam was Managing Director for the Hyde Park Angels. Sam is a recipient of the Stanley C. Golder Medal which "acknowledges individuals who have made profound and lasting contributions to the private equity industry in Illinois". He is a graduate from the University of Wisconsin, and received an MBA from the Wharton Graduate School.

Mr. John. Kispert

Expertise	Abbreviated Biography
Public Company C-Suite Leadership Technology & Chip Convergence Management & Leadership Venture Capital & Capital Formation Scale Commercialization Business Operations & Strategy International Business Corporate Governance	John is a seasoned leader with a long history of driving improved alignment across strategic and operational dimensions and delivering transformational change in both public and private companies across the globe. He also has extensive experience working with corporate and government leaders throughout China, Japan, Germany, Belgium, Singapore, Israel, Taiwan, Thailand and Korea. John serves as a senior advisor to a select group of preeminent private equity, hedge fund and venture capital firms with respect to their investment processes, value creation strategies and diligence efforts. Previously, Mr. Kispert was the CEO of Spansion, Inc. where he led the rapid transformation of this global semiconductor manufacturer immediately following the Company's spiral into bankruptcy. He successfully refocused the Company's strategy, operating footprint and growth profile before successfully selling the Company to Cypress Semiconductor for $2.5 billion. Prior to Spansion, he spent thirteen years with KLA-Tencor Corporation in a variety of roles including Chief Operating Officer. John formerly served as an Independent Director of Gigamon, Barracuda Networks, Cypress Semicondor, TriNet and Extreme Network and serves as a Board Member to as several private companies financed by private equity and venture capital sponsors. John received an MBA from the University of California, Los Angeles and a B.A. in Political Science from Grinnell College where he serves as a Trustee and is Chairman of the Finance Committee and Vice Chairman of the Audit Committee.

Mr. Greg Kranias

Expertise	Abbreviated Biography
Real Estate & Construction Private Equity & Capital Formation Business Operations & Strategy Corporate Governance	Greg is a Managing Director within the Investment Management division of Guggenheim Partners. At Guggenheim, Greg is Head of Guggenheim Strategic Capital, an investment strategy focused on privately negotiated minority investments and non-traditional debt financing solutions. Prior to joining Guggenheim, Greg was Chief Investment Officer for DNS Capital where he was hired as the first employee to build out the investment operations for a high net worth family. As Chief Investment Officer, Greg oversaw the day-to-day affairs of the office and led all direct investment activities. Prior to DNS, Greg was a senior member of TPG Capital, where he was responsible for sourcing, analyzing and executing private equity, real estate and debt investments. Prior to joining TPG Capital, he spent two years as an investment professional at Forstmann Little & Co. He began his career as an analyst in the investment banking division at Goldman Sachs. Greg graduated Phi Beta Kappa from Harvard College, with a B.A. in Economics, and received his M.B.A from the Stanford Graduate School of Business. Greg's board experience includes current or former director roles with a number of real estate companies, including Four Springs Capital Trust, AV Homes, Catellus Corporation and Taylor Morrison. Greg also previously served on the board of Iasis Healthcare, Freedom 3 and First Place for Youth, and currently serves on the board of Chicago Scholars.

Mr. Joseph Massey

Expertise	Abbreviated Biography
International Business Complex Negotiations Business Operations & Strategy Leadership	Joe is a partner in two cross-border market entry and business strategy consultancies, one focused on Japan and the other, China . He has advised numerous multinational companies on Asian business strategies; clients have included the Walt Disney Company, AT&T, DuPont, Monsanto, Siemens, and Seagram's, among others. From 1992 to 2007, Massey was Professor and Founding Director of the Center for International Business at Dartmouth's Tuck School of Business. From 1982 to 1992, Massey held White House posts at both the Office of the U. S. Trade Representative (USTR) and the Office of Policy Development. As chief U.S. trade negotiator with China and Japan, he led U.S. negotiating teams in all bilateral talks with China from 1985 to 1992. Prior to his White House service, he was a corporate strategy consultant with Braxton Associates (now Deloitte Touche) where he led cases for multinational clients on Asian markets and competitors in telecommunications, advanced materials, autos and consumer goods. Mr. Massey has been a frequent speaker at the McKinsey Multinational Institute, Harvard Business School, the Wharton School, Yale, MIT, Columbia, Princeton, the University of Chicago, UCLA and many other leading institutions. He is fluent in Japanese, the author of two books and numerous articles and earned has a Ph.D. and two Master's degrees from Yale, a B.A. from Villanova, and was three times a Visiting Research Fellow at Tokyo University.

Mr. David Mindell

Expertise	Abbreviated Biography
Technology & Robotic Development Innovation & Disruptive Technologies Manufacturing & Sourcing	David co-founded Humatics in 2015 with a mission to revolutionize how people and machines locate, navigate and collaborate. He is a professor of Aeronautics and Astronautics at MIT, as well as the Dibner Professor of the History of Engineering and Manufacturing, and Chair of the MIT Task Force on the Work of the Future. David is an expert on the myriad relationships between people and autonomous robots, he has participated in more than 25 oceanographic expeditions and developed and licensed spread-spectrum sonar technologies for undersea navigation. He is the author of five books, including *Our Robots, Ourselves: Robotics and the Myths of Autonomy* (2015) and *Digital Apollo: Human and Machine in Spaceflight* (2008). David has a BS in electrical engineering from Yale; a BA in literature from Yale; and a PhD in the history of technology from MIT.

Ms. Charlene Stokes-Schwartz

Expertise	Abbreviated Biography
Technology & Robotic Development Innovation & Disruptive Technologies Social Impacts of Technology Workforce Training	Charlene completed her Ph.D. in Industrial-Organizational & Human Factors Psychology at Wright State University. She recently joined The MITRE Corporation to lead their Human-Machine Teaming portfolio and grow their Innovation Bridging activities. Prior to joining MITRE, she was a Research Psychologist with the Air Force Research Laboratory, where she served as a Program Manager and Principal Investigator on numerous internally and externally funded programs. She established and directed the Human-Machine Social Systems (HMSS) Lab as an AFRL resource at Yale University from 2011-2016. She then moved the HMSS Lab from Yale to a Boston accelerator, MassRobotics, in an effort to increase engagement with the commercial sector and the robotics start-up community. She continues to direct the HMSS Lab at this location under MITRE. Her primary research focus is on the social dynamics of human-machine interaction, with 12 years of experience and numerous publications on the topic of trust in autonomy. She is heavily involved with service activities in the Boston local area, she serves on various NATO research task groups, and she recently served on the selection committee for the federally funded Advanced Robotics Manufacturing (ARM) Institute. She is a passionate advocate for cross-service collaboration and open innovation communities.

Mr. Stephen Tomlinson

Expertise	Abbreviated Biography
Real Estate & Construction Legal, Contracts & Complex Transactions Private Equity & Capital Formation Business Operations & Strategy Management & Leadership International Business	Stephen leads the real estate private equity practice for the global law frim Kirkland & Ellis. He focuses on business transactions in the real estate and hospitality industries for real estate private equity sponsors, sovereign and other non-U.S. investors and real estate operating companies engaged in acquisitions and dispositions, operating company and multi-investor fund formations and investments. Clients with whom Steve regularly works include Al Faisal Holdings, confidential Sovereign Wealth Funds, Bain Capital, Dune Real Estate Partners, Grove International Partners, The Lionstone Group, Morgan Stanley Alternative Investment Partners and USAA Real Estate Company. In November 2011, Steve was named a Real Estate MVP by *Law360* for his work on Anglo Irish Bank's sale of its $9.5 billion U.S. commercial property loan portfolio. Mr. Tomlinson has been consistently recognized as one of America's Leading Lawyers for Business in Real Estate by *Chambers USA* and by *Who's Who Legal* in the Real Estate chapter. He has been recognized as an *Illinois Super Lawyer* since 2005 and was also named in *New York Super Lawyers* every year since 2011. Mr. Tomlinson earned both his J.D and B.A (magna cum laude) from the University of Michigan.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