ENT603: Introduction to Entrepreneurship

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Assignment 1: Metatrends and Grit

Part 1

MetaTrends and Startups:

(1) Continued Increase in Global Abundance: The number of individuals in extreme poverty continues to drop, as the middle-income population continues to rise. Everyday goods and services (finance, insurance, education, and entertainment) are being digitized and becoming fully demonetized, available to the rising billion on mobile devices. The case for abundance has massively proven out since the publication of ***Abundance: The Future Is Better Than You Think*** in 2012.

This Metatrend is driven by the convergence of the following: high-bandwidth and low-cost communication, ubiquitous AI on the cloud, growing access to AI-aided education and AI-driven healthcare.

SP Robotics Works

Engaging in a future-based learning activity like Robotics, Drone, IOT, VR, AI and Android, is very useful for the child's future too. Child learns Science, Math and Coding in a very fun way with Robots and other activities.

(2) Global Gigabit Connectivity Will Connect Everyone and Everything, Everywhere, at Ultra-low Cost: The deployment of both licensed and unlicensed 5G, plus the launch of a multitude of global satellite networks (Starlink, OneWeb, etc.), allow for ubiquitous, low-cost communications for everyone, everywhere—not to mention the connection of *trillions* of devices. And today's skyrocketing connectivity is bringing online an additional 3 billion individuals, driving tens of trillions of dollars into the global economy.

This Metatrend is driven by the convergence of the following: low-cost space launches, hardware advancements, 5G networks, artificial intelligence, materials science, and surging computing power.

Verizon

With an astounding average 5G speed of 506.1 Mbps, Verizon, the American multinational telecommunications conglomerate, is the top provider of speed in 5G networks. Its 5G network is deployed on mmWave spectrum, and with already providing 5G in 30 cities of America, it plans to spread the network to 30 more cities. https://www.verizon.com/business/resources/5g/what-is-5g-technology/

(3) The Average Human Healthspan Will Increase by 10+ Years: A dozen game-changing biotech and pharmaceutical solutions (currently in Phase 1, 2, or 3 clinical trials) will reach consumers this decade, adding an additional 10+ years to the human healthspan. Technologies include stem cell supply restoration, Wnt pathway manipulation, senolytic medicines, a new generation of Endo-Vaccines, GDF-11, and supplementation of NMD/NAD+, among several others. And as machine learning continues to mature, AI is set to unleash countless new drug candidates, ready for clinical trials. This is the topic of my next book called LIFEFORCE being co-authored with Tony Robbins and Bob Hariri, MD/PhD (Celularity) that will be available in February 2022.

This Metatrend is driven by the convergence of the following: genome sequencing, CRISPR technologies, AI, quantum computing, and cellular medicine.

Celularity

This company is trying to advance human health, quality of life, and longevity through the power of allogeneic placental-derived cells. https://celularity.com/

(4) An Age of Capital Abundance Will See Increasing Access to Capital Everywhere: Over the past few years, humanity hit all-time highs in the global flow of seed capital, venture capital, and sovereign wealth fund investments. While this trend will witness some ups and downs in the wake of future recessions, it is expected to continue its overall upward trajectory. Capital abundance leads to the funding and testing of "crazy" entrepreneurial ideas, which in turn accelerate innovation. Already, $300B in crowdfunding is anticipated by 2025, democratizing capital access for entrepreneurs worldwide. And even during a pandemic (2020), the world deployed more venture capital than ever before, handily beating out the last high-water mark in 2019.

This Metatrend is driven by the convergence of the following: global connectivity, dematerialization, demonetization, and democratization.

Kickstrater
Kickstarter is an American public benefit corporation based in Brooklyn, New York, that maintains a global crowdfunding platform focused on creativity. The company's stated mission is to "help bring creative projects to life". https://www.kickstarter.com/?ref=nav

(5) Augmented Reality and the Spatial Web Will Achieve Ubiquitous Deployment: The combination of Augmented Reality (yielding Web 3.0, or the Spatial Web) and 5G networks (offering 100Mb/s - 10Gb/s connection speeds) will transform how we live our everyday lives, impacting every industry from retail and advertising, to education and entertainment. Consumers will play, learn and shop throughout the day in a newly intelligent, virtually overlaid world. This is where technologies like SpatialWeb.net, Vatoms, and Apple's next generation AR & VR headsets will shine.

This Metatrend is driven by the convergence of the following: hardware advancements, 5G networks, artificial intelligence, materials science, and surging computing power.

Niantic
Niantic is building a state of the art planet-scale augmented reality platform for current and future generations of AR hardware. The awesome game Pokemon Go, AR game game based on the cartoon series Pokemon, which became a world-wide hit is also a product of Niantic. producthttps://nianticlabs.com/

(6) Everything is Smart, Embedded with Intelligence: The price of specialized machine learning chips is dropping rapidly with a rise in global demand. Imagine a specialized $5 chip that enables AI for a toy, a shoe, a kitchen cabinet? Combined with the explosion of low-cost microscopic sensors and the deployment of high-bandwidth networks, we're heading into a decade wherein every device becomes intelligent. Your child's toy remembers her face and name. Your kid's drone safely and diligently follows and videos all the children at the birthday party. Appliances respond to voice commands and anticipate your needs.

This Metatrend is driven by the convergence of the following: AI, 5G networks, and more advanced sensors.

Enevo

Enevo provides waste and recycling services to retail, restaurant and other industries using IoT-enabled container sensors to reduce the environmental, social and financial impact of waste. https://www.enevo.com/

(7) AI Will Achieve Human-level Intelligence: As predicted by technologist and futurist Ray Kurzweil, artificial intelligence will reach human-level performance this decade (by 2030). Through the 2020s, AI algorithms and machine learning tools will be increasingly made open source, available on the cloud, allowing any individual with an internet connection to supplement their cognitive ability, augment their problem-solving capacity, and build new ventures at a fraction of the current cost.

This Metatrend is driven by the convergence of the following: global high-bandwidth connectivity, neural networks, and cloud computing. Every industry, spanning industrial design, healthcare, education, and entertainment, will be impacted.

XTX Markets

Founded in 2015 by Alexander Gerko, XTX is an electronic liquidity provider with over 100 employees that is particularly active in currency markets, where it is the third largest market maker by volume and is a significant player in European equity markets. https://www.xtxmarkets.com/

(8) AI-Human Collaboration Will Skyrocket Across All Professions: The rise of "AI as a Service" (AIaaS) platforms will enable humans to partner with AI in every aspect of their work, at every level, in every industry. AIs will become entrenched in everyday business operations, serving as cognitive collaborators to employees—supporting creative tasks, generating new ideas, and tackling previously unattainable innovations. In some fields, partnership with AI will even become a requirement. For example: in the future, making certain diagnoses without the consultation of AI may be deemed malpractice.

This Metatrend is driven by the convergence of the following: increasingly intelligent AI, global high-bandwidth connectivity, neural networks, and cloud computing.

Saama tecnologies

State-of-the-art clintech from Saama is designed to streamline your workflows, automate time-consuming processes, and improve collaboration across clinical operations, medical review, data management, biostatistics, and pharmacovigilance.https://www.saama.com/

(9) Most Individuals Adapt a *JARVIS*-like "Software Shell" to Improve Their Quality of Life: As services like Alexa, Google Home, and Apple HomePod expand in functionality, such services will eventually travel beyond the home and become your cognitive prosthetic 24/7. Imagine a secure JARVIS-like software shell that you give permission to listen to all your conversations, read your email, monitor your blood chemistry, etc. With access to such data, these AI-enabled software shells will learn your preferences, anticipate your needs and behavior, shop for you, monitor your health, and help you problem-solve in support of your mid- and long-term goals.

This Metatrend is driven by the convergence of the following: increasingly intelligent AI, neural networks, and cloud computing.

Socratic

Socratic is an AI-powered app to help students with math and other homework, and Google has recently disclosed that it has acquired this app. Students can take pictures using their phone camera, subsequently, Socratic uses its AI capabilities to provide visual explanations for the concepts that students need to learn. https://socratic.org/

(10) Globally Abundant, Cheap Renewable Energy: Continued advancements in solar, wind, geothermal, hydroelectric, nuclear and localized grids will drive humanity towards cheap, abundant, and ubiquitous renewable energy. The price per kilowatt-hour will drop below *1 cent per kilowatt-hour* for renewables, just as storage drops below a mere 3 cents per kilowatt-hour, resulting in the majority displacement of fossil fuels globally. And as the world's poorest countries are also the world's sunniest, the democratization of both new and traditional storage technologies will grant energy abundance to those already bathed in sunlight. Incredible companies like Heliogen will be able to mine sunlight and water to create cheap, abundant hydrogen as a storage medium. We are also on the cusp of many breakthroughs in fusion power as capital, new materials, and entrepreneurs pour in this arena.

This Metatrend is driven by the convergence of the following: materials science, hardware advancements, AI/algorithms, and improved battery technologies.

Utilight

Utilight's innovative technology aims to increase solar cell efficiency and reduce material use, reducing the cost per watt of solar electricity. https://www.utilight.com/

(11) The Insurance Industry Transforms from "Recovery After Risk" to "Prevention of Risk": Today, fire insurance pays you *after* your house burns down. Life insurance pays your next-of-kin *after* you die. And health insurance (which is really sick insurance) pays only *after* you get sick. During the next decade, we'll see a new generation of insurance providers that offer you a service to KEEP you healthy and keep your house safe during a wildfire.

This Metatrend is driven by the convergence of the following: machine learning, ubiquitous sensors, low-cost genome sequencing, and robotics to detect risk, *prevent* disaster, and guarantee safety before any costs are incurred.

Quartic.ai

Quartic.ai helps asset-intensive companies harness the flood of data generated from their equipment and processes. Quartic.ai provides the software needed to connect stranded sources of data and apply artificial intelligence to uncover hidden insights that can increase the availability, performance and quality of these assets. https://www.quartic.ai/

(12) Autonomous Vehicles and Flying Cars (eVTOL) Will Redefine Human Travel (Soon to be Far Faster and Cheaper): Fully autonomous vehicles, car-as-a-service fleets, and aerial ridesharing (flying cars) will be fully operational in most major metropolitan cities in the coming decade. The cost of transportation will plummet 3-4X, transforming real estate, finance, insurance, the materials economy, and urban planning. Where you live and work, and how you spend your time, will all be fundamentally reshaped by this future of human travel. Your kids and elderly parents will never drive. Already, a half dozen eVTOL companies have gone public raising >$10B to fuel their growth. These vehicles are real and will help define the decade ahead.

This Metatrend is driven by the convergence of the following: machine learning, sensors, materials science, battery storage improvements, and ubiquitous gigabit connections.

Luminar Technologies

Developer of LiDAR-based sensors for autonomous vehicles. It develops hardware and proprietary software enabled LiDARS, which can be configured with multiple sensors for autonomous driving. It comprises fiber lasers, scanners, receivers, and processing electronics. https://www.luminartech.com/

(13) On-demand Production and On-demand Delivery Will Birth an "Instant Economy of Things": Urban dwellers will learn to expect "instant fulfillment" of their retail orders as drone and robotic last-mile delivery services carry products from local supply depots directly to your doorstep. Further riding the deployment of regional on-demand digital manufacturing (3D printing farms), individualized products can be obtained within hours—anywhere, anytime.

This Metatrend is driven by the convergence of the following: networks, 3D printing, robotics, and AI.

Flytrex

Flytrex offers an end-to-end delivery service using automated drones for retailers, ecommerce marketplaces, restaurants, and delivery companies. Flytrex drones can carry packages weighing up to 6.6 pounds and are capable of flying approximately 6.2 miles. https://flytrex.com/

(14) Ability to Sense and Know Anything, Anytime, Anywhere: We're rapidly approaching the era wherein 100 billion sensors (the Internet of Everything) is monitoring and sensing (imaging, listening, measuring) every facet of our environments, all the time. Global imaging satellites, drones, autonomous car LIDARs, and forward-looking augmented reality (AR) headset cameras are all part of a global sensor matrix, together allowing us to know anything, anytime, anywhere. In this future, it's not "what you know," but rather "the quality of the questions you ask" that will be most important.

This Metatrend is driven by the convergence of the following: terrestrial, atmospheric, and space-based sensors, vast data networks, 5G communication networks, next-gen Wi-Fi, and machine learning.

Luminar Technologies

Developer of LiDAR-based sensors for autonomous vehicles. It develops hardware and proprietary software enabled LiDARS, which can be configured with multiple sensors for autonomous driving. It comprises fiber lasers, scanners, receivers, and processing electronics. https://www.luminartech.com/

(15) Disruption of Advertising: As AI becomes increasingly embedded in everyday life, your custom AI will soon understand what you want better than you do. In turn, we will begin to both trust and rely upon our AIs to make most of our buying decisions, turning over shopping to AI-enabled personal assistants. Your AI might make purchases based upon your past desires, current shortages, conversations you've allowed your AI to listen to, or by tracking where your pupils focus on a virtual interface (i.e., what catches your attention). As a result, the advertising industry—which normally competes for *your* attention (whether at the Superbowl or through search engines)—will have a hard time influencing your AI.

This Metatrend is driven by the convergence of the following: machine learning, sensors, augmented reality, and 5G/networks.

Sizmek

Sizmek's AI-powered platform provides insights that help companies better understand customer data and, consequently, produce more relevant content and campaigns. Sizmek's AI technology analyzes billions of data points to help predict the best times, messages and environments for increasing conversions. https://advertising.amazon.com/solutions/products/sizmek-ad-suite

(16) Cellular Agriculture Moves from the Lab into Inner Cities, Providing High-quality Protein that is Cheaper and Healthier: This next decade will witness the birth of the most ethical, nutritious, and environmentally sustainable protein production system devised by humankind. Stem cell-based "cellular agriculture" will allow the production of beef, chicken and fish *anywhere*, on-demand, with far higher nutritional content, and a vastly lower environmental footprint than traditional livestock options. To support this area, the XPRIZE has launched a $15M "Feed the Next Billion" competition focusing on fish and chicken.

This Metatrend is driven by the convergence of the following: biotechnology, materials science, machine learning, and agtech.

AGEYE Technologies

The US-based startup AgEYE Technologies develops intelligent software and sensor solutions to improve the quality, predictability, and profitability of agriculture. They use a combination of machine vision, AI, and machine learning to detect pathogens and contamination for all the plants much faster than what humans can do themselves. Their solutions significantly save time and reduce the labor involved in scouting the farm for diseases and abnormalities. https://ageyetech.com/

(17) High-bandwidth Brain-Computer Interfaces (BCI) Will Come Online for Public Use: Technologist and futurist Ray Kurzweil has predicted that in the mid-2030s, we will begin connecting the human neocortex to the cloud. This next decade will see tremendous progress in that direction, first serving those with spinal cord injuries, whereby patients will regain both sensory capacity and motor control. Yet beyond assisting those with motor function loss, several BCI pioneers are now attempting to supplement their baseline cognitive abilities, a pursuit with the potential to increase their sensorium, memory, and even intelligence. Recent demonstrations of a macaque monkey playing Pong using a Neuralink implant is proof of incredible progress. Add to this the breakthrough work of Dr. Mary Lou Jepsen using red laser light holography to read and write onto brain neurons, and we have the making for an incredible future.

This Metatrend is driven by the convergence of the following: materials science, AI/machine learning, and robotics.

Neuralink

Neuralink is a team of exceptionally talented people. We are creating the future of brain interfaces: building devices now that will help people with paralysis and inventing new technologies that will expand our abilities, our community, and our world. https://neuralink.com/

(18) High-resolution VR Will Transform Both Retail and Real Estate Shopping & the Future of Education: High-resolution, lightweight virtual reality headsets will allow individuals at home to shop for everything from clothing to real estate—all from the convenience of their living room. Need a new outfit? Your AI knows your detailed body measurements and can whip up a fashion show featuring your avatar wearing the latest 20 designs on a runway. Want to see how your furniture might look inside a house you're viewing online? No problem! Your AI can populate the property with your virtualized inventory and give you a guided tour. On the education front, the use of VR and AI-driven avatars with technology such as that demonstrated by Dreamscape promises a future of game-like, immersive, and powerful education and training.

This Metatrend is driven by the convergence of the following: VR, machine learning, and high-bandwidth networks.

Oculus

They manufacture VR headsets and devices providing realistics gaming experiences.
https://www.oculus.com/

(19) Increased Focus on Sustainability and the Environment: An increase in global environmental awareness and concern over global warming will drive companies to invest in sustainability—both from a necessity standpoint and for marketing purposes. Breakthroughs in materials science, enabled by AI, will allow companies to drive tremendous reductions in waste and environmental contamination. One company's waste will become another company's profit center. A key example of this area of focus is the recent launch of the $100M XPRIZE Carbon Removal that has been funded by Elon Musk. Thousands of prospective teams have hit our XPRIZE website and many hundreds have registered thus far.

This Metatrend is driven by the convergence of the following: materials science, AI, CRISPR, digital biology, and broadband networks.

Stor Water

Identifying and Locating Non-Revenue Water for Small and Medium Sized Utilities. Machine Learning based Leakage Detection Tools. http://www.storwater.com/

(20) CRISPR and Gene Therapies Will Minimize Disease: Perhaps one of the most powerful, underappreciated technologies in the world is CRISPR. In 2020, two incredible women won the Nobel Prize in medicine for its discovery, and revenues from CRISPR doubled between 2019 and 2020 to over $1.5B. A vast range of infectious diseases, from AIDS to Ebola, are now potentially curable, as are a wide range of genetic ailments like sickle cell anemia, thalassemia and certain forms of congenital blindness. In addition, gene-editing technologies continue to advance in precision and ease of use, allowing families to treat and ultimately *cure* hundreds of inheritable genetic diseases.

This Metatrend is driven by the convergence of the following: various biotechnologies (CRISPR, Gene Therapy), genome sequencing, and AI.

Celularity

This company is trying to advance human health, quality of life, and longevity through the power of allogeneic placental-derived cells. https://celularity.com/

Part 2

Grit exhibited by Zomato Founders

- Deepinder Goyal and Pankaj Chaddah were in their office in New Delhi and they came across so many people who were waiting for a long time just to acquire a flash of the menu card. They got an idea to create a solution for the same and they started their company Zomato formerly known as "Foodiebay".

- The most significant hurdle in the Zomato journey was to find a way to cover all the restaurants in all the areas in all the pivotal cities so that the consumers who hinge on them do not miss the finest restaurants in the locality
- In 2015, Zomato had to lay off 300 employees to curb losses which obviously had large scale implications
- In the same year, in the States, Zomato had acquired Urbanspoon and rebranded the company as their own. Unfortunately, the rebranding did not come out as expected and the venture failed miserably.
- In 2017, it faced it's biggest cyber attack with a hacker that had breached into 17 million user records from the company database. Their concerns were overpayment and user card & account details being accessed by the hacker.
- In 2019, the #logout campaign surfaced when the restaurants listed on the portal called out on it for eating into their profit margins through Zomato Gold and Infinity Dining features, a Zomato feature that provided heavy discounts.
- The restaurant association highlighted these issues like "unreasonably high commissions, payment terms and arbitrarily applied additional charges" that the restaurants were being charged to be a part of the Zomato initiative, Zomato Gold. Post this campaign, Zomato discontinued the Infinity dining service, also revised and altered Zomato Gold rules while laying off and also faced tremendous protests from the partnered restaurants.
- Zomato registered a rise of 177% of restaurant partners and got on board an additional 73K restaurants. As of now, Zomato has close to 119K restaurants, compared to 43K restaurants in 2019.