The RISE of Artificial Intelligence
Stanford University Faculty Club, Fall 2017

Stephen Gordon
Microsoft Corporation

Joshua Wolff
Stanford University, Class of 2021

David Guo
Stanford University, Class of 2021

ABSTRACT

Microsoft, together with Cambridge Massachusetts tech startup, Composable Analytics, and Apttus, headquartered in San Mateo delivered an innovative executive level thought leadership event this fall called R.I.S.E. (Robotics, Intelligence, Society, Economy). The challenge was clear - rapid advancements in artificial intelligence (AI), machine learning (ML), robotics, social media, autonomy, image and speech recognition, and other areas of technology will continue to have massive economic and social impact, raising entirely new sets of questions, presenting challenges and new opportunities in every part of society. Key business stakeholders essential to identifying practical, realistic future solutions for these technologies are often not at the table to discuss digital transformation plans or are not aware of the near-term nature of changing technological landscape – what the World Economic Forum calls, a Fourth Industrial Revolution.

Keywords: artificial intelligence, machine learning, defense, national security

Microsoft inspires business stakeholders to think of Microsoft as a global leader in innovation and help lead them through complex digital transformation journeys. The RISE program was developed to bring together thought leaders from academia, technology policy thinkers, and Microsoft's technology groups, to provide invites guests from corporations and governments a forum where everyone has a perspective and is free to debate, share frustrations, ask questions, and listen. Since the inception, RISE has partnered with media innovators like Vice.com, think-tank policy leaders, universities, cloud software pioneers, venture investors, and tapped into the full talent network of Microsoft across every corner of company from products, R&D, supply chain, ventures, gaming studios, hardware teams, and executive leadership. The series in its first year has hosted hundreds of executives to attend small table, invitation-only events in private settings -New York, Palo Alto, Boston, Washington D.C. and recently Honolulu, HI. This fall at the Stanford Faculty Club in the heart of Silicon Valley, Microsoft hosted a RISE discussion with 30+ leaders from defense, transportation, biotechnology, telecommunications, government research labs, venture capital, electronics manufacturers, and even the neighboring Palo Alto Fire Department. All were on hand for a lively discuss and debate, themed: The Rise of Artificial Intelligence -implications and the future of Digital Transformation.

Digital Transformation has created profound changes and challenges for businesses, at every layer of the organization. One concern raised by executives during the event was the velocity of

digital change taking place with technology, making it very difficult to keep pace with just where to start a digital journey. Cloud computing and bespoke microprocessors for AI and advanced workloads like image processing or drone navigation have provided the world with speed and agility which offers tremendous advantage if planned and leveraged correctly. The cloud has also created a living, always-on environment for systems to constantly learn, become smarter each day, and oh by the way, never forgets anything. These smart platforms raised some concerns by almost everyone at the table. One government customer asked a kickoff question "what is the difference between digitizing my organization's processes, and becoming a digital company?" Traditionally an IT department responsibility to evaluate and integrate software and technologies into the organization's business processes, is now a risk to the business without due diligence from legal, HR, business groups, even the board of directors. Consider the ethics, inherent bias of machines which run on software developed by humans. AI software, legal concerns of autonomous systems taking over office jobs, impact to long term hiring, all must be discussed, or a small decision can have lasting impact to the company. The group sparred on the topic that technology investments can no longer be about technical merit but must assess ways to quickly bring in technology that does not disrupt the business into chaos. For defense and national security entities, the change is already underway. Human decision making is now machine assisted -from wargaming operations, training of forces, logistics, weapons systems, to real time decision making during conflict, machines are now a part of the decision loop more than ever before.

A comment from the table was that "DOD (Department of Defense) needs to be more like Silicon Valley". The remark was further clarified – "it's not the valley culture that DOD will ever adopt, but a fail and learn faster model", natural for startups in the valley. In fact, for many fields, meeting and adapting to digital transformation is a significant landmark within the life of their company, mandatory for survival, yet remains challenging to implement largely because of organizational culture.

REGULATIONS

The topic on everyone's mind was undoubtedly the pressure of government regulations that would come with the growth of digital organizations. There was no unanimous consensus on this topic; while most agreed that too much regulation could slow innovation, others argued that technology innovation is a problem best left to the disruptors, technology innovators, and companies creating these capabilities. Generally, there were two schools of thought: one argued that regulations stifled competition, discouraged innovation, yet agreed that increasingly sophisticated cyber-attacks cause organizations to pause in their execution of digital transformation -stuck in the planning and "what if" phase. The table agreed that companies will take a "you-do-it-first" attitude toward digital transformation, letting other organizations act as a sort of battle lab of learning, testing, failing, and recovering on someone else's budget.

Given that the conversation took place in Silicon Valley on the campus of Stanford University with two undergraduate students (Joshua Wolff, and David Guo) participating, we anticipated having a discussion around the mystique and underpinnings of what makes Silicon Valley so unique and how companies can be more like a startup. Specifically, the discussion steered toward what companies can do to foster an environment of innovation. Some commented that it's not an option anymore -either become digital or go the way of once great companies who are no longer around (Kodak was mentioned). For governments, out-innovating the adversary is not an option, it is a must. But the formula for success in Silicon Valley some argued is unique and happened with a combination of luck and timing that is hard to replicate. Look anywhere else in the world -there are no equivalents at scale to the thriving combination of tech

companies + universities + venture money, (sprinkled with the history of early disruptors, storied examples of 2 guys and a dog working out of their garage that became tech titans.) The comment was made that most of the apps on your mobile phone -and the phone itself were developed within the short stretch of land in northern California's Silicon Valley. Some however are taking a page from the valley playbook like the Navy in Orlando Florida. The division which builds software and hardware simulators to teach sailors, soldiers, and pilots to learn and train in synthetic environments is situated among a natural combination of university talent, proximity to the creative minds of Disney, and has built a team with all the talent and culture of a thriving startup. The local Orlando area universities are graduating kids who grew up on game platforms like Xbox, providing a steady pipeline of new recruits, and taps this creative network to develop ideas and concepts for new simulator experiences. Others commented that they have adopted Pixar's "BrainTrust" model of swarming around an idea or early stage concept which has helped bring their organization's dormant creative skills to the forefront by providing a forum to share and critique -without retribution - ideas that produce the best practical solutions.

Rapid prototyping -the ability to test and fail faster, and produce a minimally viable product, seems to be a common part of the success formula -and addresses the tech velocity and speed concerns head-on. Unanimously the table of experts agreed that with every step up in the maturity of any digital transformation journey -moving through the digital maturity model, requires an elevation in an organization's talent network. Difficult to hire talent dynamically - leaning on tech companies to bring talent as needed is one way to sprint through some of the stage gates of transforming the business with short term successes with plans for long range digital aspirations.

LOOKING AHEAD

The expressions around the table as we wrapped up the evening over coffee was, "ok, who's going to go first?" Organizational / historical culture of conservative business practices seemed to be a big blocker in many cases -and there is no easy button / silver bullet to change decades of culture overnight. Some suggested that building a groundswell of support from the ranks of the organization (bottom up / "damn the regulators" Uber's approach) is one way to start change. Others are looking to senior leadership to sponsor change. It was commented that the "algorithm of success" for any organization to change is to have a likeable, progressive CEO, which will empower the business to think differently and take smart risks. Organizations who embrace change and have allow a culture of innovation to thrive, will capitalize on technology's potential. The discussion from the table will move into a LinkedIn discussion group for further debate.

Microsoft's RISE forum will continue to bring these and other tough discussions to the table, creating actionable insights by partnering with institutions like Stanford University, industry pioneers like Apttus, and creative, and inspiring thinkers to help customers reach their full digital potential.