



STI

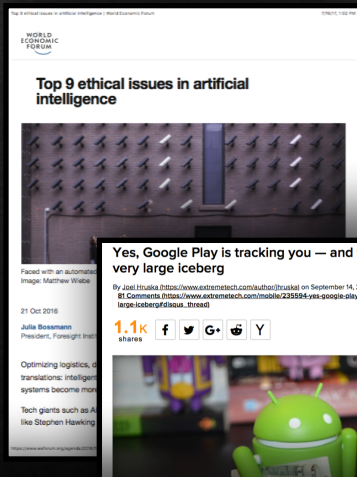
Strategic Technology Institute

Informational Point of View on the Ethical Application of AI

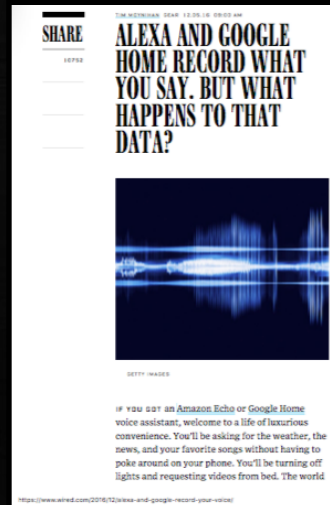
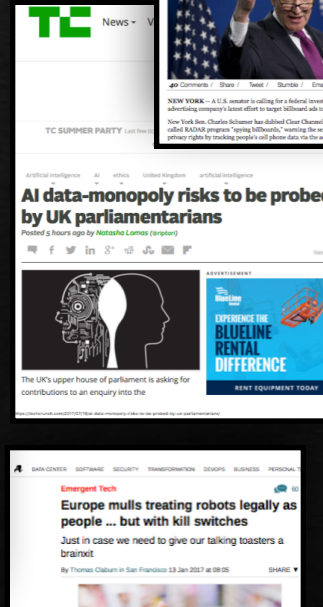
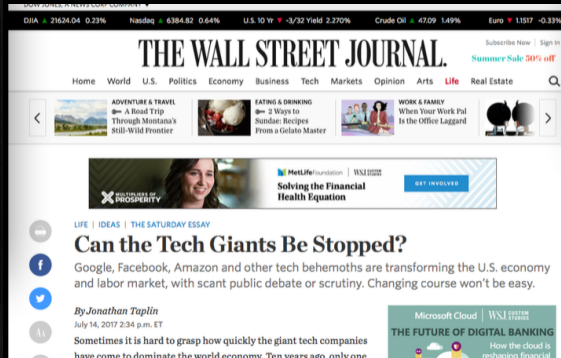
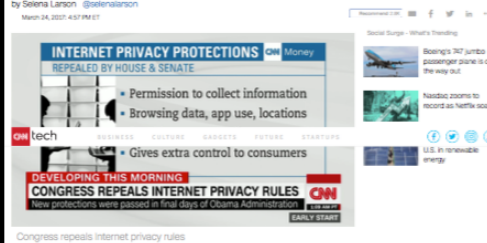
*Public Policy
Advisory Services*

August 2017

Will your company be next?

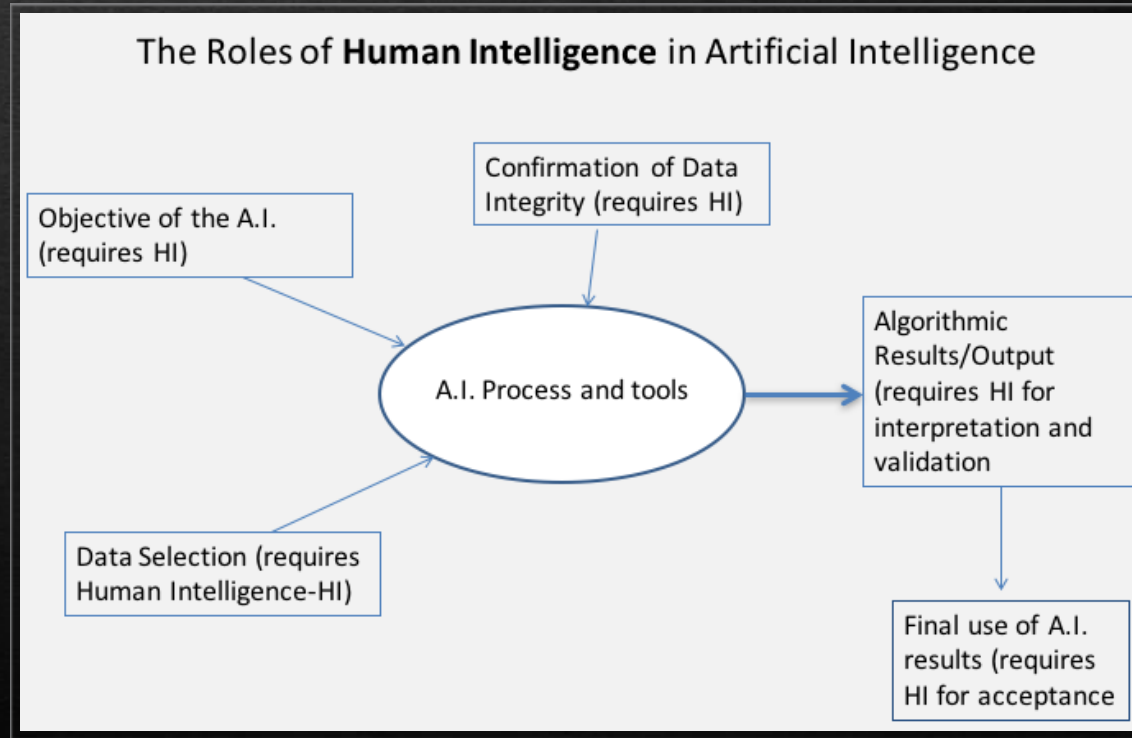


Cyber-Safe
Worried about companies spying on your browsing? Here's what you can do



Technology Ethics (AI Example)

Is AI really just "augmented human intelligence"? How and where to use this entire process is a human decision. Thus, the human component must be subject to the normal checks and balances established by society.



HI in AI graphic courtesy of Gerald Harris,
President and Managing Director,
Quantum Planning Group, Inc.
<http://www.artofquantumplanning.com/>

Issues

What are the industry issues and concerns of digital transformation without a moral framework that considers customer centricity, brand alignment, engineering ethics, liability risks, and political/regulatory assessment?

Digital Disruption & Dislocation

- Economic value moving from owners of content (NBCU, Time Warner) to dominant platforms (Comcast, AT&T/DIRECTV, iTunes, Netflix)
- Will dominant platform businesses overturn the service sector next?
- Impulse to share beats impulse for privacy

Because we can build it ... we will

- AI has the potential to diagnose diseases equal to or more accurately than doctors can
- Uncritical application of the technology risks harming the public interest through increased risks to public infrastructure, such as AI-controlled power grids, communication systems, and financial records

Tyranny of Data

- Will insurance companies move from discounts for health-monitor bracelets, like Fitbit or Apple Watch, to requiring you to do so?

Herd Mentality

- Rushing into early-stage AI product development and marketing hype without proper vetting and plans

In Silicon Valley, people transfer engineering and entrepreneurial approaches to their understanding of the social world, such that efficiency, utility, instrumentality, and economic rationality become the philosophical underpinnings of the Silicon Valley worldview

— San Jose State anthropologist, Jan English-Lueck

In the case of AI, the risks are too high to allow AI to develop unfettered. AI calls for precautionary, proactive government intervention.

— Tesla and SpaceX CEO Elon Musk

“AI should stand for augmented — not artificial — intelligence”

— David Kenny, IBM SVP for Watson

Implications

What are the implications of digital transformation without a moral framework that considers customer centricity, brand alignment, engineering ethics, liability risks, and political/regulatory assessment?



Mass dislocation of workers due to AI-based automation

- The World Economic Forum estimates that AI, robotics, and automation could replace 5 million jobs around the world by 2020.
- PwC estimates that 38% of jobs in the U.S. are at “high risk” of being replaced by robots and artificial intelligence over the next 15 years
- EY expects graduate recruitment at auditors and accountants could fall by as much as 50% by 2020 due to the impact of artificial intelligence.
- 2.9 million truckers and delivery drivers, 674,000 bus drivers, 181,000 cab drivers and chauffeurs could be impacted by driverless cars and trucks.

Misinforming policy decision-makers through bad data inputs and improper analytic algorithms

- Garbage in = garbage out. Be wary of paradigm overshooting as regards the use of analytical methods in human decision-making contexts

Human safety, such as unproven driverless cars, or over reliance on autopilots

- A 2010 FAA study of 10 years of airline crash data concluded that “Pilot errors had been involved in over 2/3 of all crashes; and automation has made such crashes more likely” by degrading situational awareness and weakening hand-flying skills.

“It is unavoidable that large chunks of the money created by AI will have to be transferred to those whose jobs have been displaced. This seems feasible only through Keynesian policies of increased government spending, presumably raised through taxation on wealthy companies”

— Kai-Fu Lee, Former Apple executive and current chairman and chief executive of Sinovention Ventures

“If a robot comes in to do the same thing, you’d think that we’d tax the robot at a similar level.”

— Bill Gates, Microsoft Founder and philanthropist

Risks & Costs



To the degree that AI contributes to socio-economic dislocation and/or increased safety risks, its societal costs, redress, prevention, and prohibition will need to be reassessed by governments ... and your customers

- **Civil and/or Criminal Penalties** — acting in a way that one knows (or should have known) will harm (or pose an unreasonable risk of harming) the public interest through undue risks
- **Product Liability Law**
 - **Design Defect** — product design is inherently dangerous or useless (and hence defective) no matter how carefully manufactured
 - **Failure to Warn** — inherent non-obvious dangers which could be mitigated through adequate warnings to the user
 - **Manufacturing Defects** — poor-quality materials or shoddy workmanship
 - Even when the product works as intended, there may be unexpected side affects that have social and moral issues
- **Targeted Taxation** — Can the benefits be shared with those who are harmed (and if so how, via taxes, special fees)?
- **Increased Regulation** — Can AI be applied, monitored, regulated — with real enforcement? Should there be actual limits on where AI is applied (parallel to those preventing certain bio-technology experiments on humans)?

Responsibilities



Since the technology industry benefits from publicly funded research, government-granted patents and tax breaks, and since it makes products vitally important to public commerce, it needs to be accountable to society at large, in addition to its shareholders

The technology industry has certain Fundamental Moral Responsibilities (FMRE) and Derived Moral Responsibilities (DMR), paraphrasing Robert McGinn of Stanford:

Civil and/or Criminal Penalties — Not act in any way that one knows (or should have known) will harm (or pose an unreasonable risk of harming) the public interest through undue risks to human safety, risks to public infrastructure, and mass dislocation of workers due to AI-based automation without proper redress or retraining

Product Liability Law

- **Design Defect** — To try to prevent (or prevent the repetition of) preventable harm (or the creation of an unreasonable risk of harm) from being done to the public interest
- **Failure to Warn** — Assure that all parties likely to bear non-trivial safety or dislocation risks from one's engineering work are adequately informed about them upstream and given a realistic chance to give or withhold their consent to their subsequent imposition.
- **Manufacturing Defects** — Insure that all prerequisite conditions for the safe operation of AI technology are satisfied
- Even when the product works as intended, plan responses to unexpected side affects that have social and moral issues

Targeted Taxation — If economic dislocation cannot be adequately prevented, under Rawls, AI companies will not for long be permitted to exploit displaced workers without redress. We can envision a day when accounting software, medical databases, driverless cars and trucks, automated financial trading, and drone delivery companies could be taxed to provide benefits to the millions of Americans out of work due to these systems or contribute the funds to fund retaining at local colleges and trade schools.

Carrot or Stick?

Is AI ethics driven by proactive risk avoidance or mandatory regulations?

Weak Sources:

- Press accounts
- Industry Forums
- Consumer Activism

Strong Sources:

- Federal Laws
- State Laws
- Industry sanctioned groups with power to set or influence rules
- “Public Utility” type institutional entities

How will both of these emerge overtime and how will they relate?

*Weak & Strong Sources of Regulation courtesy of Gerald Harris, President and Managing Director, Quantum Planning Group, Inc.
<http://www.artofquantumplanning.com/>*

Value of Transparency & Trust

"To succeed in today's digital age, companies must think beyond dollars, cents and convenience, and focus on data ethics. As malfeasance, blunders and mishandling of consumers' personal information reaches epic proportions, trust is the new battlefield for companies to seize the digital high ground, our latest research reveals." — Cognizant

91% of buyers worry about who sees their personal data

Source: Cognizant Center for the Future of Work

Don't shy away from new technology to put your customer's data worries at ease.



57% of customers won't buy from you if you use their data unethically

Source: Cognizant Center for the Future of Work

Customers may forgive brands for their mistakes, but not for their dishonesty.



45% of customers share personal data if you tell them how you will use it

Source: Cognizant Center for the Future of Work

Transparency can be your biggest asset to win in the digital economy.

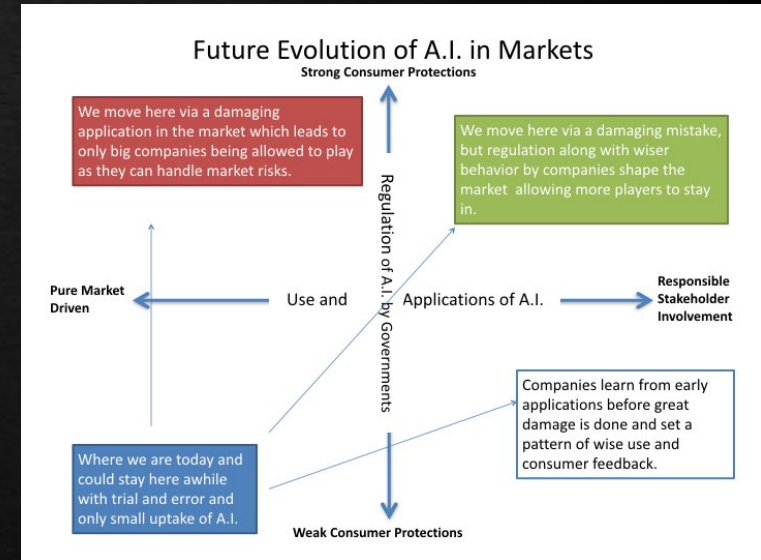
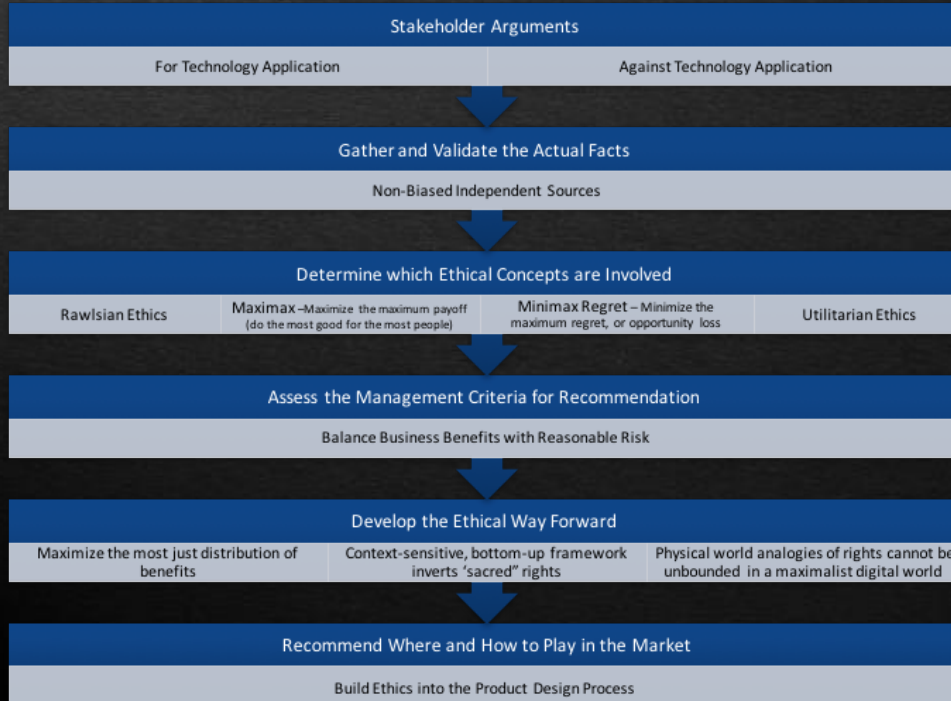


The industry challenge is to engage with customers at an individual, personalized level... in a privacy-assured manner. PwC found that:

- 76% of respondents are willing to share personal information when they were offered free benefits
- 80% of respondents said they were willing to share personal information if the company lets them know upfront how they are going to use it
- A Consumer Privacy Bill of Rights might actually increase consumers' willingness to share information
- 87% of survey respondents want to be able to manage what and how personal information is used

STI Approach

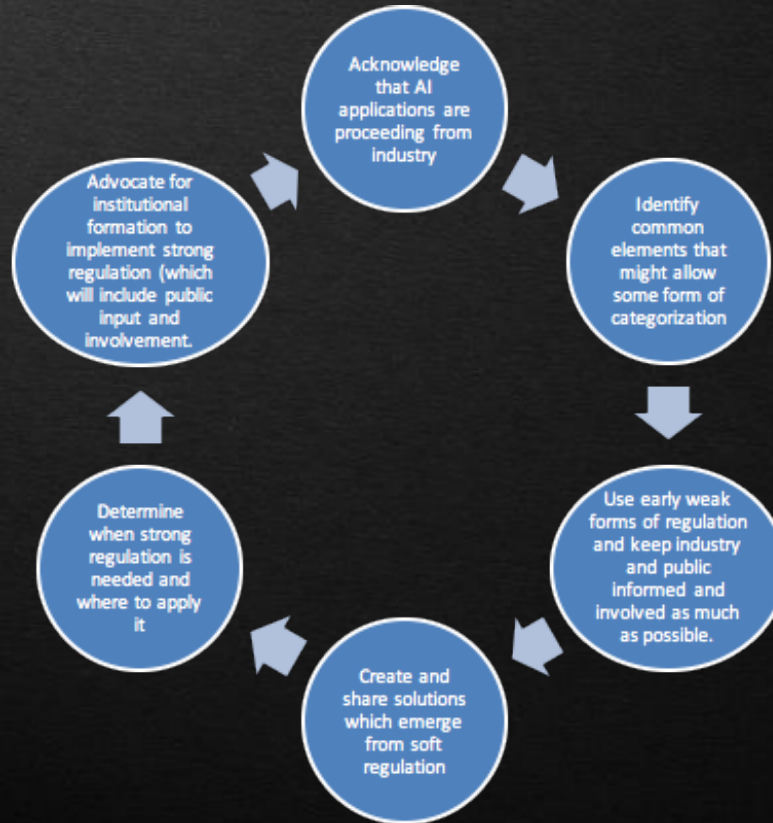
How do we assess and advise on long-term customer value and a brand ethics to reduce AI's threats of economic dislocation that grow out of unbounded application of technology?



AI market evolution taxonomy courtesy of Gerald Harris, President and Managing Director, Quantum Planning Group, Inc.
<http://www.artofquantumplanning.com/>

STI Approach, cont.

The assessment approach needs to be combined with a long term learning loop for ethical consumer engagement



AI Learning Loop courtesy of Gerald Harris,
President and Managing Director, Quantum Planning
Group, Inc. <http://www.artofquantumplanning.com/>

Benefits

What are the business and brand benefits of digital transformation in the context of a moral framework that considers customer centricity, brand alignment, engineering ethics, liability risks, and political/regulatory assessment?

- Reinforcement of Sustainable Brand Value to Customers, Partners, Investors, and Public
- Focuses Investments in Sustainable Products and Markets
- Reduction of Risks of Civil/Criminal Penalties
- Reduction of Need for “Crisis Management” Costs and PR Damage
- Minimize Need for Government Intervention and Regulation





Appendix

Strategic Technology Institute

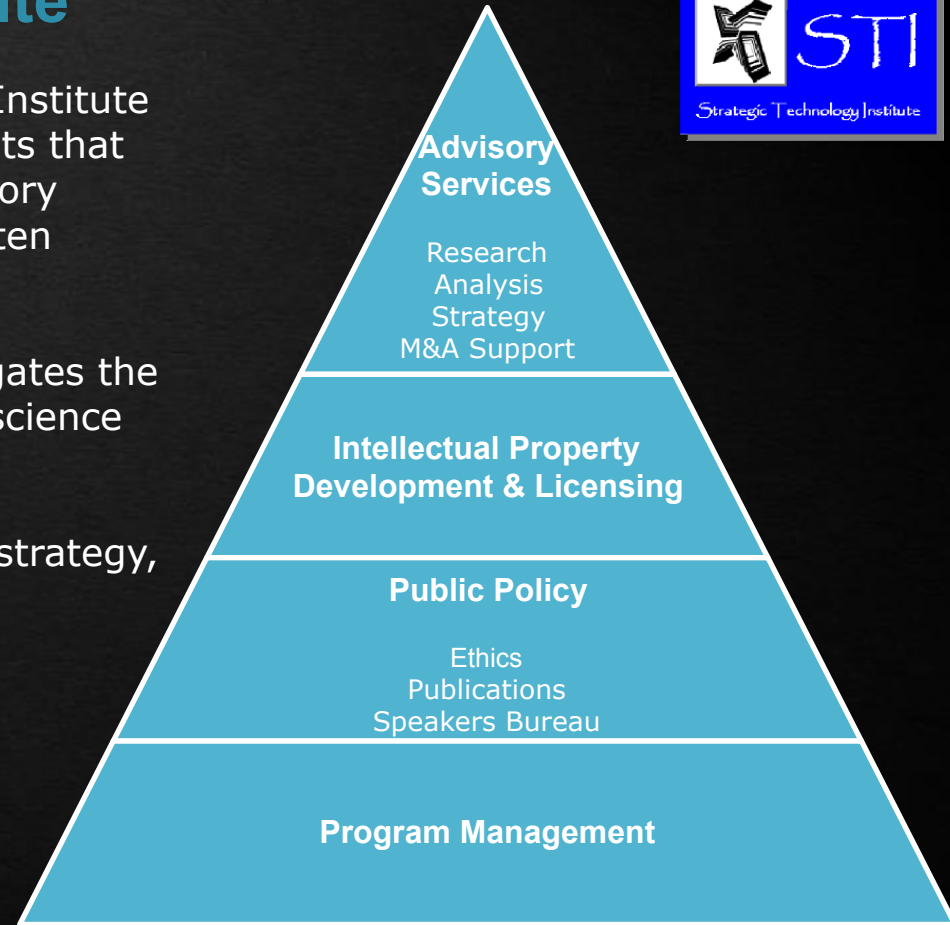
Founded in 1985, the Strategic Technology Institute (STI) is a network of independent consultants that provides executive-level management advisory services focused on corporate strategies, often facilitated by technology innovation

STI is also a virtual 'think tank' that investigates the business and public policy issues raised by science and engineering

Aligning technology roadmaps to corporate strategy, STI has the following lines of business:

- Advisory Services
- Public Policy
- IP Development & Licensing
- Program Management

Note -- Over the years, STI was also formerly known as Strategic Systems, Inc. and Strategic Technologies, both of San Francisco. City of Oakland license #2249782.



Corporate strategies, often facilitated by technology innovation, at the intersection of the Media & Entertainment (M&E), Information Technology (IT) and Communications industries

- Example -- Multi-platform distribution of digital media assets by secure IT-based supply chain systems, delivered to consumers over mobile platforms, creates new business opportunities for digital engagement and higher-quality metrics for media, telecommunications, computer, consumer electronics, retail, and services companies

STI's services are especially significant to companies when they are:

- Transforming from traditional departmental to "content-centric" models of business,
- Considering (or have done) M&A activity, either purchasing entities to be integrated or rationalizing a group of companies that need to be integrated, or
- Evaluating adjacent markets but need additional technical depth and operational expertise to assess opportunities and plan for success in a business environment that has increased risks, and
- Lack the staff and/or bandwidth to handle the tasks internally

1. Technology is not neutral, and therefore can be held to moral and ethical standards
2. Codes of ethics are held and promoted by engineering professional societies
3. The rights of stakeholders must be bounded by the constraints of the modern technological society and, in certain special cases, be restricted
4. John Rawls' ethics principles grounds the moral case if harmful and damaging social impacts and a basic sense of unfairness (disproportionate spread of downside costs on a particular community or group) occurs. A starting list of these impacts includes, but is not limited to:
 - loss of opportunity to participate equally in a benefit
 - imposition of higher costs to get benefits
 - the emergence of disruptive or costly externalities with no chance of redress
5. These moral responsibilities provide a paradigm shift away from merely cost reduction or harm reduction to a combination of maximization of benefits within the context of minimizing harm.
 - This renewed ethical imperative would lead to scientific research and product designs for the most positive consequences, rather than settling on the current approach of minimizing the maximum regret.

Supporting Materials

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Blake White

Founder



Past Leadership Positions

- Cognizant Business Consulting
- PwC
- Ascent Media Consulting
- SGI
- Apple
- HP
- P&G

Thought Leadership



Experience Summary



Founded in 1985, the Strategic Technology Institute (STI) is a network of independent consultants that provides executive-level management advisory services focused on corporate strategies, facilitated by technology innovation; and a virtual 'think tank' that investigates the public policy issues raised by science and engineering

- Extensive career, holding senior positions at: Cognizant, PwC, Ascent Media, National TeleConsultants, Silicon Valley computer companies (HP, Apple, SGI), and 3 startups
- Management consultant, with both Media & Entertainment and Silicon Valley technology development, integration and advisory experiences. Clients have included: ABC, BBC, Corus Entertainment, Dreamworks SKG, Discovery Latin America, Lucasfilm, MediaCorp Pte, Microsoft Studios, MTV Networks, Nominum, Panavision, Procter & Gamble, South African Broadcasting Corp, Turner, UCLA and Weather Channel
- Global client and partnership experiences in: Canada, Mexico, UK, Germany, South Africa, Japan, South Korea, Australia, and Singapore
- Extensive experience as a Thought Leader through industry presentations, journal articles, speaking engagement, and interviews. Author of *The Technology Assessment Process: A Strategic Framework for Managing Innovation* and several industry publications
- BSIE, MBA and MLA degrees from NC State, Xavier, and Stanford

Representative Projects

- Decomposition and analysis of a major cable network's linear and digital air chain workflows and systems for replacement and improvements with modern architectures and technologies,
- Future state design of an Asian media conglomerate's "content-centric" infrastructure roadmap and organizational transition
- Digital Transformation program plan and launch for leading global professional services firm
- Project Planning for major broadcaster's R&D organization
- Broadcast & Digital Media Technology Strategy for a global retail media company
- Archive Management technology vendor recommendation and project implementation for a major US broadcast news organization
- Content Security Assessment & Recommendations for a leading cable network
- Application Portfolio Rationalization for a leading cable network
- M&E Value Chain Analysis and product recommendations for a leading post production and broadcast solutions vendor
- Cloud-based M&E Product Line Strategy for a US communications company
- M&A Due Diligence and product capability investigation for a private equity firm

Expertise

- Alignment of technology roadmaps with business strategy
- CTO and Tech Ops program management and organizational capability assessment
- Digital Transformation strategies and program management
- Digital media supply chain, including Media Asset Management (MAM) systems assessment
- Cross channel/platform content monetization strategy
- M&A due diligence and support
- Technology product marketing, business development, licensing, and alliance strategies

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Publications





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