Welcome to the RISK Lab!

In the following pages, you will find candidate projects from sponsoring companies under the RISK Lab (DECS 920) for FALL 2014.

The projects listed include working with actual company data, developing meaningful analytical models for managerial decision-making, and presenting results and recommendations to company executives. Most projects will require some level of Non-Disclosure Agreement (NDA) with the sponsoring company.

Please feel free to contact me at 847 467 2148 or russell-walker@kellogg.northwestern.edu with any questions and interest

Thanks for your interest.

Russell Walker, Ph.D.
Associate Director of the Zell Center for Risk Research
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CUBA STUDY GROUP
WWW.CUBASTUDYGROUP.ORG

About

The Group was formed in 2000. Realizing that policies based on strategic rather than reflexive considerations were needed, the Group committed to seeking more practical, proactive, and consensual approaches toward Cuba policy. We favor pragmatic and effective approaches based on deliberate fact-finding, careful analysis, strategic orientation, and a strong ethical foundation.

Project:

“Identification of Entrepreneurial Training Needs and Rewards Enable by a Prototypic Training Program in Cuba.”

The Cuba Study Group has developed a novel educational program to provide entrepreneurs skill-set training. These entrepreneurs are permitted under new governmental regulation. The specific training is administered through agents of the Catholic Church and focus on needs of the entrepreneur in starting new businesses.

Although small in scale, these businesses often carry the hopes of whole families and even larger communities. Cuba expects over 1 million workers to enter the private work force due to downsizing of the government, so jobs enabled by entrepreneurs will be critical to the economic success of individuals, families, and the economy.

Through and initial and prototypic class offered for entrepreneurs, the Cuba Study Program has novel data on the performance of entrepreneurs, the choice of ventures, the data on the cost of beginning various ventures (capex, equipment, etc.).

The project will examine, broadly the success of entrepreneurs, the success and needs of the educational program, and provide direction on ventures that are more successful. Development of metrics that capture the broader success and risks of a venture are also to be developed, especially an assessment of ventures that can grow new jobs.
About

This project is sponsored by David Cornwell of Gordon and Rees.

Bio on David Cornwell

David Cornwell is a partner in the Sports, Media and Entertainment practice in the firm’s Atlanta office. He was recently appointed as the Executive Director of the National Football League Coaches Association, representing the interests of nearly 500 assistant coaches in the NFL.

Considered one of the premier attorneys for professional athletes, sports agencies, executives, and companies in the sports industry, Mr. Cornwell’s background includes the representation of a professional sports league (NFL), professional athletes (as a sport agent), and a major sports licensee (the Upper Deck Company). He has also represented professional sports franchises, league and team executives, and coaches. Informed by decades of experience in the sports industry, Mr. Cornwell provides strategic legal and business advice, and assists clients in navigating the maze of complex business and legal issues that arise in the sports industry.

Mr. Cornwell began his 25-year career in sports by joining the National Football League in 1987 as Assistant League Counsel, representing former Commissioners Pete Rozelle, and Paul Tagliabue. During his five-year tenure as NFL counsel, he represented the Commissioner’s office in numerous legal and business affairs, including the antitrust lawsuits filed in the wake of the 1987 player strike. Following the decertification of the National Football Players Association, Mr. Cornwell worked with Commissioner Tagliabue to ensure that the NFL and its players maintained an open channel of communication, resulting in the creation of the NFL Players Advisory Council.

Notable among his many achievements was his leadership in developing and directing the NFL’s minority hiring program, which helped pave the way for the NFL hiring its first black head coaches – Art Shell and Dennis Green. The Washington Post acknowledged his historical contribution in a front-page article in February, 2007 when Tony Dungy and Lovie Smith made history by becoming the first black head coaches to reach the Super Bowl.

In 1992, Mr. Cornwell was recruited by Leigh Steinberg and Jeff Moorad to join their sports agency, where he represented professional athletes such as Howie Long, Warren Moon, Desmond Howard, Junior Seau, Troy Aikman, Steve Young, Greg Anthony, and John Starks.

Mr. Cornwell also served as Vice President and General Counsel for the Upper Deck Company, Upper Deck International, and Upper Deck Authenticated. As the principal negotiator for Upper Deck’s trading card and memorabilia licenses with each of the professional sports leagues and their players associations, Mr. Cornwell negotiated and administered licenses and endorsement agreements that earned Upper Deck and its affiliates in excess of $300 million in annual gross revenues.
He is a member of the Board of Directors of the Sports Lawyer Association, and is a popular lecturer on topics unique to the sports industry, including serving as a guest lecturer at the Wharton Business School. His lecture, “Critical Principles of Negotiations,” incorporates practical examples of his experiences into the techniques used to achieve successful results in negotiations. Mr. Cornwell is also a much sought-after legal analyst for insight on implications of current legal events in the sports industry, including serving as a Legal Analyst during the Michael Vick dog fighting case and Major League Baseball’s steroid investigation.

**Project:**

“An Examination of the Financial Risks and Performance of Professional Football Players and Comparison to Other Highly Compensated Professions for Purposes of Identification of Risk Measurement.”

NFL players, as compared to many professions are highly compensated. However, many NFL players experience financial ruin or experience financial struggles that are suggestive of risks in their financial trajectory. These financial risks are perhaps increased by the compensations and influence of friends and handlers. A general lack of familiarity with financial decisions and an overall poor access to quality advisors may be possible explanations for this downturn in financial standings among players.

This study will examine the financial trajectory of NFL players in comparison to other highly compensated professional (in sports, media, entertainment, and professions) to identify risk factors that are suggestive of a poor financial trajectory. Solutions to mitigate or remove the risks are ideally desired.
About
These projects are sponsored by Deepak Singh and Jim Wilt, who are both on the Microsoft Professional Services team. Students may select one of the following projects.

Project 1: Risks to Humans Arising from Automation and Artificial Intelligence through Digital Platforms

In his new book "Our Final Invention: Artificial Intelligence and the End of the Human Era", James Barrat makes a very persuasive argument that due to the risks of human-level or super-human artificial intelligence, the human species is doomed. Intelligence appears to be the key trait that sets humans apart from other species. Humans are not the dominant species due to our physical prowess but thanks to our brain (and our hands) humans are at the top of the food chain. Human dominance is threatened by creatures of our own creation, namely computers with AI that have greater-than-human intelligence ("superintelligence"). Such AI could become so powerful that it would either solve all our problems or exterminate the human race (autonomous vehicles aren’t out to kill us, but that may be a side effect of building them - BTW, we are not talking about a "Terminator" scenario here).

This risk can be characterized as existential and its progression is not well understood. There is no understanding of the events or markers which would be apparent if super-human intelligence became manifest. In fact, there is still a lack of consensus amongst computer scientists of what will happen, when and how. Some believe that the super-intelligent computer will be downloaded into a human being (or vice versa) so nothing bad will happen. Others believe in the integrity of Asimovs Three Laws of Robotics. Still others believe nothing will happen. This last group though is shrinking in size.

The goal of this risk project is to take a deep qualitative and quantitative dive to determine what is a likely roadmap to super-intelligence looks like, what markers/events would indicate that this risk is indeed happening and what a likely outcome would be. No computer science/AI background is needed as that will be provided by Microsoft. What is needed are people who can say given that certain computer capabilities exist and change over the next 20 years, what would companies and governments do to leverage these capabilities (e.g., would we see changes to their supply chains), how would these capabilities show up (new or changing business models?) and how would a labor force be impacted once computers start to do everything and make decisions? It might be the roadmap is 10 years long; it also may be true that the roadmap is 1000 years long.

A previous Kellogg MBA class looked at the impact of autonomous vehicles on business models and explored several businesses that will be impacted by the existence of these. Fortunately, "death to humans" was not an outcome. This work is part of a larger research effort examining how humans and machines are changing. It is about the fact that a major change is coming in that machines which have been doing the majority of the work since the First Industrial Revolution, will now start to make decisions, the domain a human being has had all to ourselves. What then,
happens to humans where there is no need to think or work? We would like to have the beginnings of a roadmap that helps answer that question.

**Project 2: Risks to Personal Privacy from Digitally Enabled Measurement and Data Broadcasting**

**More Details to Follow**
Discover Financial Services
WWW.DISCOVERFINANCIAL.COM

Project: The Risks Associated with Banking Functions Moving into Non-Banking Spaces, such as Payment Systems like Square.
Levi Strauss and Edelman Crisis Management

Candidate Project

CLIENT: Levi Strauss & Company

Levi’s has long been an industry leader across the spectrum of quality, standards guiding production, and customer loyalty. The recent tragedies in Bangladesh and Cambodia in which thousands of laborers have been killed have ignited a changing global landscape in supply chain risk management and calls for stricter standards and accountability. As consequence, Levi’s is struggling with the immediate demands of non-governmental organizations including labor activists and human rights groups to commit to standards, guidelines, and accords governing supply chain compliance. Refusal to sign typically results in reputational issues stemming from intense social media conversation and boycott petitions. At the same time, Levi’s wants to maintain sufficient control over its supply chain structure to: maintain its iconic brand loyalty, strengthen its global competitiveness, and continue to distinguish itself as a leader in corporate social responsibility (Core Interests). Levi’s has retained you to put together a schematic (fluid approach & strategy) that will materially enhance the company’s ability to balance international pressure to commit to common supply chain guidelines and protocols with the need to determine what factors in the supply chain equation are most critical to Levi’s Core Interests.

This project is sponsored by Harlan Loeb, Global Practice Chair | Crisis & Risk Management. Harlan also teaches at the Northwestern Law School and is an international expect in public relations and crisis management.
Menus of Change
www.MenusofChange.org

Project Description

Assessment of Environmental and Health Risks Arising from the Increase Dependence of Palm Oil in the World’s Food Supply.

This project is sponsored by Arlin Wasserman, a Founder and Director of the Menus of Change, a joint venture between the Harvard School of Public Health and Culinary Institute of America.
Summary

Dairy producers in the United States have faced volatile and challenging market conditions over the past few years – these conditions have, in some cases, squeezed margins or even resulted in negative margins that threaten producers’ long-term viability. Margins for a dairy producer are typically driven both by commodity-based input costs (feed rations) and revenues that are also generally tied to commodity markets (milk markets). The objective of this project is to develop a comprehensive risk management program for dairy producers that considers current and future market conditions, current or potential risk management tools and strategies, and policies that may produce structural changes in markets (e.g., 2013 Farm Bill).

Key questions

1. What are the major risk drivers of margin for dairy producers? Which are most volatile?
2. How much basis risk exposure do producers face? Are there regional differences (e.g., California milk market pricing vs. Federal milk order pricing)?
3. What are the differences in risk and approach for those dairy producers that grow their own crops?
4. What risk management tools are available to producers to better manage margin? Futures and options? Insurance? Are there liquidity constraints to consider?
5. What risk management strategies are most appropriate under different market conditions?
6. What are the fundamental drivers of market prices? How might markets change depending on structural shifts in dairy markets (e.g., international demand growth in Asia)?
7. How might the proposed Farm Bill or other policy decisions influence the dairy business?
MarkITx
www.MarkITx.com
An 1871 Incubator Firm

Background
MarkITx is a two-sided exchange featuring on one side, suppliers of hardware and communications IT infrastructure items (used by their firm in the course of their business) primarily based in the USA, and on the other side, purchasers of these items, often in bulk and in areas outside the USA. MarkITx provides certification of item quality, condition and standardization, as well as a trading platform on which sellers and buyers can in good faith sell and buy commodity goods.

This is a data-driven exchange in a B2B environment that has explosive exponential growth potential. As a result of recent angel funding from a prominent local exchange executive, MarkITx is positioned to dominate this exchange-driven mechanism for IT commodities.

Summary and Potential Impact of the Proposed Project
Specific business problems in marketing, forecasting, customer segmentation, pricing, commodity analysis, logistics, risk management, operations, inventory leveling, supply chain improvement, and scenario planning are sure to provide great analytical opportunities. MarkITx seeks for students to build out its predictive pricing model, if that's the right level of difficulty. MarkITx has three "input" data sets, and one small but growing "actual" data set.

The source data sets will be aggregated listing and transaction data from eBay and new product listings from Google Shopping. We'll deliver the data as flattened CSV files in small-enough size to open in Excel.

Some business questions of inquiry are listed below. The Kellogg team and the client will work together to determine the set that is doable, given data and the team’s interest.

1. What is the relationship between new and refurbished (eBay) prices?

2. How does that relationship vary by product category and brand? Are there words in the product description that correlate with an especially large or small price drop from new to refurbished?

3. What is the variance in price paid for a given product? Is there a well-defined fair market value, or do prices vary wildly? Does that variance vary by product category or brand (or some other factor)?

4. How does that relationship between new and refurbished prices vary over time (i.e., by age of product)? This assumes that we can get enough historical data from eBay, which is still TBD.

5. Are transactions clustered in time? Can we detect buyers making bulk purchases or sellers making bulk listings? We may be able to get augmented data with buyer and seller IDs, which would make this much easier. That's still TBD.
Candidate Project
The candidate project with CME is sponsored by Christopher Mead, Director at CME and Kellogg alumnus and Jake Siddall and Molly McMahon, Kellogg alumni. Students may select one of the following projects.

Project Descriptions

1. Response Time Prediction

As an exchange we constantly strive for consistency in response times. An order sent to the exchange during a period of busy activity should have the same response time as an order sent during a slow market. The goal of the project is to create a model that can accurately predict the expected response times based on a set amount of incoming order messages. The work previously done on this project will give a solid base with which to start and the project is able to be viewed in many ways – the group can put it together in whatever way they feel will give the manager the best decision making ability.

2. “Floor” vs “Electronic”

As markets have evolved the CME has evolved. What was once a floor based trading model is now predominantly electronic. The goal of this initiative is to compare prices and liquidity in the two different environments. This project will look at Eurodollars and E-mini S&P contracts and how these products respond differently on the floor versus electronic venues. The goal of this project is to analyze the effect of floor trading on electronic liquidity and order completion. This will be done by specifically evaluating if there is a substantial difference between trades price, bid/offer, and volumes from the floor to the electronic markets.

3. The Validity of “Request For Quote” (RFQ)

A electronic Request for Quote (known as an RFQ) sent into the market is expect to generate liquidity in an instrument. However, this is not always the case. This project will take a closer look at the correlation between RFQs in different markets and the robustness of those markets. Here Eurodollar options and E-mini S&P options will be used to build a predictive association between the use of RFQs and the liquidity of the market.
Lockton Companies
www.Lockton.com

Project Description

About
Lockton is the world’s largest privately owned insurance brokerage firm. Their clients are most heavily in natural resources, heavy manufacturing, transportation, energy, and mining.

Project 1:

Cyber Security: To date, the headlines have been riddled by data breaches and the criminal use of personally identifiable data. Researching the exposure and readiness of vulnerability of industrial and operational technologies would be beneficial. Why are these systems vulnerable? What is the security around these systems? What are the impacts of failure? How have these systems and the subsequent risk of failure developed over the last two decades?

This study can be focused on energy-sector specific (electrical grid, pipelines, generation) or very broad transportation (rail, water, air), heavy manufacturing, pharmaceutical, or other suitable industry to examine, based on the team’s interest.

Project 2:

Developing a risk-retention quotient for the Natural Resources Sector: No one firm in the natural resources sector is immune from the volatility of their revenues and operating costs. Generally speaking, risk retention decisions are made at a point in time and remain static. Firms in this sector would benefit from a tool that would assist them to evaluate these important decisions over a period of time. As an example firm A’s ability to retain risk (based on a # of financial measures, e.g. available liquidity, cost of capital, leverage) at this point in time is 1.0. 24 months ago it was 1.3 and 5 years ago it was .62.