AmCham Young Professionals Award 2019
CASE GOODS

Whatever You Want, Wherever You Want
On the Movement of Goods

Take a look around you – whether you are at the office, at home or at your favorite coffee bar - all items around you were sourced and delivered from all around the globe as part of a highly complex and global system for the movement of goods; usually referred to as supply chain and logistics. It depicts one of the central catalysts for the functioning of local/national and rural/urban economies. Moving different quantities of raw materials and finished products from A to B is subject to many types of risks, dependencies, time pressure, as well as to political and economic conditions. It involves various stakeholders with often both, local and global ecosystem members (e.g. producers, transportation companies, harbors/freight, customs, warehouses, stores, consumers) who in turn use a mix of systems, solutions as well as different levels of manual and automated processes.

Some examples of the challenges and at the same time opportunities include:

Digitization: Like in other industries the digitization of the supply chain and logistics industry has gained enormous traction. Solutions to reduce costs, increase visibility and to allow more advanced analytics of data with the purpose of increasing efficiency, flexibility, security and profits are developed. Also, technologies like blockchain, IoT and Artificial Intelligence have the power to transform the movement of goods.

Innovative developments in transportation modes: Examples of drones and self-driving cars delivering pizzas have caught the media's attention. Technology developments in the 'future of shipping/cargo/urban delivery' are created and implemented across the globe. Small local players as well as global enterprises are looking for alternative, more efficient and cleaner solutions to deliver products to their destination.

Pressure for more environmentally friendly practices: In an era where there is high awareness of environmental impacts, dangers for public health, as well as destruction and stretches of ecosystems more attention is paid to the industry as a heavy pollutant e.g. through emissions but also the disposable packaging applied for the 'better' movement of products.

Circular concepts and resource scarcity: Ambitions of producers to re-use materials in their supply chain pose new requirements and ask for new solutions for stakeholders involved in the usage and movement of goods. From office furniture to washing and coffee machines at home – More and more products need to be collected/moved, disassembled and (after recycling/re-use) delivered to another location again.

Assignment

For this case we invite you to think of ideas/solutions that will allow your/any company/an ecosystem of companies to innovatively address a concrete challenge of your choice in the movement of goods.

Please ensure your solution addresses latest technologies, sustainability demands and the potential to scale.

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CASE PEOPLE

People on the Move: Threat or Opportunity?

Consider two areas where technological advances over the past century have fundamentally changed the human experience: transportation and communication. In regard to transportation, the 'jet age' has made our planet much smaller: a journey from Europe to Australia that used to take months can now be completed in less than 24 hours; a trip from London to New York takes less than 8 hours where it used to take days. Not long ago, it was a long journey to leave one's home country or even city, let alone travel and explore the world. This in a time where we've also made transformational advancements in communication. Our parents sent letters or postcards via the post; now we Facetime or Skype real-time across continents. We have supercomputers in our pockets that can give us almost anything we're looking for in seconds, and the pace of change continues to accelerate. The talent pool is no longer limited by geographic vicinity, and those looking for opportunities have more information at their fingertips than ever. Studying or working abroad is becoming commonplace and is in many cases considered desirable by younger generations.

As our world becomes increasingly accessible and connected, the natural progression to a more diverse, international, and heterogenous labor market will continue to develop in industrialized countries. But there are geopolitical headwinds: populism in the US and Europe, protectionism and the like. And while talent remains equally distributed across the globe, opportunity remains unequally distributed based on political, economic and other barriers.

The new mobility that we've enjoyed over the last 100 years, fueled by transportation and communication advances, give us choices that we've never had before. But it also creates new considerations for governments, employers, universities. Your task is to think through the new paradigm described above and find some interesting and groundbreaking solutions.

Please explore two dimensions:

(a) which policies could break down the barriers described above and create the conditions for attracting the 'best and the brightest' while improving economic standards at large (minimizing the risks that certain groups are 'left behind');
(b) then consider, which strategy could bring this to the most competitive edge for your/any organization. Describe in four steps.

Themes to consider could (but don't have to) include: how can governments and companies break down barriers to enable swift and seamless mobility of workers? Who wins and loses when this happens? And how can the 'losses' be mitigated? How can governments and companies fully realize the economic benefits of migration (skilled and/or unskilled) while addressing needs/concerns of the local population? How can unskilled workers avoid being 'left behind' in an eventual transition from a manufacturing/production-based economy to a service and technology-based economy?

Knowledge on the Move

Mobility of knowledge will become more and more important in our current and future world. For organizations knowledge is (and will become even more) a key asset in decision making and when training and educating newcomers in the job. The ability to efficiently transfer knowledge will therefore become a true competitive advantage, in particular for innovative companies. This competitive advantage is not only relevant in the outside world of customers and competitors, but will also serve as an important vehicle for attracting and retaining young people and professionals.

In industrial (but also other) contexts, modern technology can improve decision making and performance in the field by making information, knowledge and competencies accessible in real time. People can share what is seen in the field instantly with each other, access technical documentation and receive real time data for optimized and faster maintenance and other field activities. Field personnel can thereby not only complete their tasks with greater efficiency, but also the performance of the (industrial) plant will increase, by connecting employees and giving them access to direct support.

An Example: Immersive Competency & Mixed Reality Simulations

Our lives have changed with the introduction of mobile solutions. Many tasks have become easier, information is readily available and people are better connected. However, in the industrial field workers have seen limited benefit from this technology change so far. But there are new developments. One of them is called *Immersive Competency*. *Immersive Competency* is a type of workforce training that immerses an employee in the environment in which he/she will work, through simulation such as virtual and augmented reality. The employee learns by doing, by literally experiencing - and solving - the situations, problems and challenges he/she might face in real. *Immersive Competency* prepares field workers for a variety of situations using *Mixed Reality Simulations* combined with a wide range of learning modules, exercises, assessments, fault injections and tracking of the user's progress on the task at hand. The solution contextualizes job-specific learning and allows users to safely experience the consequences of their decisions. Users will be able to complete field tasks faster and safer, boosting productivity while also improving employee retention and satisfaction.

What is *Mixed Reality*? Immersive and hands-on *Mixed Reality* (VR and AR combined) merges both real and virtual worlds and produces a new environment where physical (real) and digital (virtual) objects co-exist and interact. Studies reveal experiential learning is 75% more efficient than passive teaching methods (lecture reading) and that the retention rate is 36% higher than video methods.

Immersive Competency redefines how users interact with their hardware and software, providing the required hands-on experience that enables users to better rehearse and retain tasks without compromising safety. *Immersive Competency* provides a highly realistic environment in an isolated training solution.

In this case study, we ask you (a) to come up with an innovative idea to exploit, serve out and use the knowledge existing in your organization (in documents and people) in an innovative way and (b) to prove that it works. Convince us that this matters, i.e.: that (your) senior management will buy into this. Feasibility of your solution is an important criterion, and a demonstrable impact assessment would be an excellent differentiator as well!

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CASE DATA

Data: Always on the Move

In today's digital world, an enormous amount of Data is being generated. By 2020, it's estimated that 1.7MB of data will be created every second for every person on earth. More than 3.7 billion humans are currently using the internet. On average, search engines process more than 55,000 searches every second (around 5 billion searches per day).

Data never sleeps, it's always on the move.

Given its exponential growth and ever fluid nature, it is imperative that consideration be given to the interconnectedness of Data always on the move - from a macro level to an organizational level to an individual level. For example, in May 2018, the EU implemented GDPR (the General Data Protection Regulation) on data protection and privacy for all individuals within the European Union and the European Economic Area. And businesses and people that have customers in the EU, or that work with information processors in the bloc, are also subject. GDPR has a significant global impact.

In this case study, we ask you to choose one or more of the following themes to address:

Data Privacy / Security:
- Individuals are sharing more and more personal information online. What approach & tools can be utilized to best ensure this information is properly safeguarded?
- How can organizations best protect their sensitive information and processes from theft and corruption? What tools or policies can be put in place to ensure that employees keep confidential information as such during and after employment?

Data Accuracy / Accessibility:
- Broader accessibility of data triggered by internet expansion has deepened age-old challenges around data accuracy: for example, how to ensure users interpret data accurately, how to prevent misinformation. What are the best ways to address data accuracy in the digital age?
- Many high-quality data sources are behind paywalls. For example, many high-quality medical journals publish valuable data that is only accessible via payment, despite these studies often being government funded. What should the future of data accessibility look like?

Data Discrimination / Ethics:
- Many countries are already using citizen's online data to make key decisions. What role should an individual's online information and behavior be used in government decision making? What approach and tools can be used to protect private data?
- Companies possessing significant amounts of user data are often caught between individual privacy and governmental interests. What recommendations would you make to companies at their role? How should this influence how companies engage with their users about products?

Be innovative and pragmatic in addressing *Data: Always on the move*!

AmCham Young Professionals Award 2019
CASE ENERGY

Energy on the Move: Logistics, Storage and Distribution

Our world is constantly on the move: technological innovation, physical transportation, scientific advancements or societal changes – there never is a standstill. It is similarly so in the world of energy. Nearly all of us in the Western world are used to electricity always being available: the electrons are always ready to start flowing, always there and waiting for us to plug in our phones, laptops or electric cars. We have all become increasingly dependent on electricity and are accustomed to the critical infrastructure always being up and running. But, the way in which the energy ecosystem operates is constantly in motion as well.

We are in the midst of a major energy transition, in which we are transitioning from large, centralized and often fossil fuel powered energy supply to decentralized and more sustainable energy sources. Besides the changes in the ways in which we generate energy, we also see changes in our energy consumption, e.g. electric vehicles, heat pumps and home batteries.

At current, the electricity grid is interconnected across Europe, and energy consumption and generation constantly need to be in nearly perfect balance in order to ensure availability of electricity whenever we need it. This delicate balance is constantly maintained by a whole range of roles within the energy market. The energy transition has also sparked a whole range of innovations in this field, like *microgrids* and *smart grids*, which in turn change the way the market and market parties have to operate to ensure the constant availability of electricity we're all so accustomed to.

A Complicating Factor…

Traditionally, certain parties are responsible for maintaining the balance between electricity generating and electricity consuming clients within their portfolio. If these parties fail to achieve a balance within their own portfolio, they can trade excess energy on a market place. If an imbalance remains, there are system operators that retain flexible assets which can be temporarily switched on or off to restore the balance on the grid.
Renewable energy like solar and wind is often unpredictable. If you combine this fact with the fact that an increasing number of electric vehicles starts or stops charging at will, one sees that this leads to increased volatility on the energy grid. Microgrids like e.g. the ones in a neighborhood, aim to optimize energy consumption and generation in their own micro-environment, but should they fail to achieve a balance, they are currently still dependent on the trading markets and system operators to 'keep the lights on'. This means that it is very challenging for a microgrid to go entirely off-grid, i.e. to remove their connection to the transmission and distribution energy grid.

We therefore challenge you to solve the following issues…

Are there any synergies between to be found in our constantly moving world that will enable microgrids or individuals to become entirely self-sufficient? For example: can our constant increase in

parcel deliveries also deliver fully charged battery packs? Or will your electric car that is fully charged at work provide you with the necessary energy at home? Otherwise, are there synergies to be found between different modalities in transportation of discrete goods (like parcels, cars, people, etc.) and continuous goods (like fresh and sewer water, gas, electricity)? Do you see synergies between 'energy' and 'non-energy' activities? Do you see particular benefits for individuals, NGOs, SMEs, corporates, governments? Please consider that all solutions might include an element of minimizing consumption or increasing energy efficiency as well. Be sure to examine your deliverable!

Moving Into Outer Space

With the (renewed) focus on space missions and the diversification of the parties capable of playing a significant role therein, time has come to reassess the current principles underpinning space exploration to see whether these need updating. That is the subject of this case study.

At present, some 4,500 satellites circle Earth, providing communication services and navigation tools, monitoring weather, observing the universe, spying and doing more besides. Getting them there was once the business of superpowers' armed forces and space agencies. Now, it is mostly done by companies and the governments of developing countries.

During the early years of the space race reaching orbit was hard. Between 1957 and 1962, 32% of American launches and 30% of Soviet ones failed. Only states could assume such risks – and even if American firms had wanted to bear them, its government would not let them on national-security grounds. Companies eager to send objects into space, including telecoms firms, had to hitch a ride with NASA. This changed when European countries started building launchers through a mostly state-owned company called Arianespace, which touted for custom among satellite-makers around the world. When the space shuttle *Challenger* exploded in 1986, NASA got out of the satellite-launching business. It and, later, the Pentagon became new customers for private launch firms, alongside the satellite operators.

In the past decade, the West's space-launch market has become more competitive thanks to an innovative new entrant, SpaceX. But state-run programmes still lead the way in emerging markets. In 2003, China became the third country to launch a person into orbit; India plans to follow suit in 2022. Both sell launch services to private clients. Like their cold-war predecessors, these Asian titans have strategic goals as well as thirst for publicity. They need independent access to space for communication, intelligence and navigation. However much commercialised space gets, the competition will never be solely economic.

How should space exploration be governed? Space is a commons. At least, that was determined in the 1950s by a UN committee, and laid out a decade later in the Outer Space Treaty. No country can lay claim to the moon, asteroids or other celestial bodies; space is open to all for exploration. The language of early treaties is notably grand, with space referred to as the 'province of all mankind'. Developed in the 1950s and '60s, space law is state-centric and arguably ill-suited to a commercial future.

We therefore challenge you to take a 'fresh' look at how our ventures into outer space should be governed by:

- Identifying the top 10 policy and/or regulatory issues that may arise among space exploring parties (public and private), between those parties and the 'rest of our world', but also between those who

moved into outer space and those who stayed back on Earth – for example, you could think about property claims, space pollution/garbage, space war); and

- Drawing up the foundation on which you believe this new (dimension of) society ought to be built taking into account the issues you have identified. Please also explain how this should be implemented in practice.

Make sure you present your outcomes in an appealing way!

Urban Mobility & Smart Cities

Large cities are breeding grounds for economic growth, education, communication, technological innovation, arts and leisure. The global trend is that large cities are growing rapidly. The UN predicts that by 2030 over 50% of the world's population will live in cities, and this percentage will grow to 75% by 2050.

Growing cities all over the world are faced with major challenges such as the energy transition, climate change and sustainable, healthy living environments. Smart cities – the winners of the future – succeed in successfully combining the sustainable economic prosperity of the city with these large societal challenges.

Large cities are attractive to people as productivity, innovation, creativity and income are generally at higher levels within cities than outside [1], but there are some factors that hamper the growth of urbanisation. High energy usage, air pollution and limitations to the capacity of the infrastructure within a city are serious obstacles.

The ideal *smart city* is a city with a pleasant, healthy, sustainable and safe residential atmosphere, where reliable transportation and relevant work are amply available. Concepts like *circularity*, *sharing* and *Products as a Service* (PaaS) are developing quickly.

Can we ensure that large and growing cities remain pleasant and healthy for inhabitants for the long term and that they do not become unhealthy surroundings which are continuously polluted by a gridlock of cars and other means of transportation or nearby industry?

Starting from the premise that cities will continue to attract increasing numbers of people, please develop a new idea for or a product related to city planning that helps to improve the living environment and the ease of living in sustainable ways for the people who live in these cities. We challenge you to think about how we will live and spend our days in cities. In your solution, be sure to keep in mind the important balance between the following three pillars: Economic Growth – Sustainability – Quality of Life.

1. Duranton and Puga 2004 – Handbook of Regional and Urban economics, volume 4

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CASE HEALTHCARE

Say No to Drugs. Say Yes to Moving.

In 2011, two employees of the innovation company IDEO, Adrian James and Sean Duffy, decided to address the type 2 diabetes epidemic by using a remarkable set of solutions. The result is a company known as Omada Health.

It had occurred to James and Duffy that creating a new drug for type 2 diabetes would be too expensive and time consuming. Instead, they opted for a solution that had just been clinically trialed: physical activity and diet reduced the risk type 2 diabetes by up to 70%.

They exploited that scientific evidence to create a motivation and coaching program in which patients receive fitness trackers and smart scales. These in turn send data to back Omada Health, allowing them to monitor weight and activity level of the patients.

It became clear to the founders, from market research, that loss of productivity due to Type 2 Diabetes costs employers more than $200 billion yearly. This helped Omada Health establish that the payer for their program should be employers of patients suffering from type 2 diabetes and not the patients themselves.

Today, Omada Health makes money by charging employers in the US for every amount of weight lost (or maintained) by their enrolled employees. However, they only get paid if Omada Health can prove that the weight lost (or maintained) was a direct result of their program.

Omada's case is a clear demonstration that you don't always need a drug to solve a health problem.

Your challenge:

- Come up with an innovative drug-free solution to a healthcare problem of your choice. Ideally (but not necessarily), your solution involves movement.

- Demonstrate that your solution is both technically feasible and financially viable by providing at least one concrete example. You may use clinical trials in addition to your favorite source of evidence.