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The Impact of COVID-19

This edition of the REAMIT newsletter is dominated by the delays caused by the COVID-19 pandemic. The first part of this newsletter outlines the general impact of the pandemic as compiled by the REAMIT Team, the second part discusses the impact specifically on the activities of the REAMIT project. Also this report discusses other disruptions in European supply chain activities due to COVID-19, as a comprehensive view of social media news.

COVID-19 impacts on food supply chain - A social media view

Undoubtedly, COVID-19 has impacted all aspects of the global food supply chain, resulting in huge quantities of food waste. Normally, 88 million tonnes of food goes to waste every year within the EU [link to source]. With the situation getting worse, the pandemic has affected each and every food supply chain player in many ways. The food transport sector is working hard to reach the consumers on time with fresh food irrespective of several challenges. Retailers are continuously improvising and building resource capacities to make ends meet and ensure the food is made available to customers. Given the fluctuating nature of the demand, industries with limited resource capacities tend to produce more food waste.

Several news sources (e.g. Sky News) have highlighted the potential impact of this pandemic on agri-food supply chains, including the UK, Europe and the world. For example, labour shortage having an effect on food production and handling of the produce [link to source].

Many farmers have resorted to disposing of their crops and produce including milk & eggs in large quantities. This is because many of the companies that would usually purchase their produce in large quantities of food are closed. These companies include schools, hotels, restaurants and other leisure facilities that have remained closed for months during lockdown. The government is willing to float funding of worth £3.25 million for the benefit of redistribution organisations to curb food waste : [link to source].

The UK is one of the countries worst hit by COVID-19 and has lost many thousands of lives due to this pandemic outbreak. The UK Government took several initiatives to control the spread of virus through social distancing and lockdown measures. In the first few weeks of lockdown, UK retail stores faced one of the greatest shortages of food and basic items including medicine. Many shoppers, especially the vulnerable population, were deprived of enough food, toiletries and medicines such as plain flour, toilet tissues and paracetamol. Panic buying was one of the reasons for such a heavy demand from the UK customers. This left the retail stores with a huge mismatch in demand and supply of items [link to source].

Transportation

The stringent rules and lockdown measures in many countries across Europe have affected food transportation. New business relationships are being formed as transportation companies who usually work in profit based business sector are entering the non-profit business space, especially by the use of online supermarkets and distribution of surplus foods. The major problem that persists with food providers is that massive amounts of seafood are being dumped during this pandemic, due to lack of demand, with seafood restaurants being closed. In their efforts to avoid wastage, there is a huge amount of food being diverted to donation, at significant overhead costs incurred to these suppliers for harvesting, transporting, and storing of such food.

In a recent webinar entitled "Good Food Businesses: Building resilience through COVID-19", guest speaker Sophie Andre from Elysia Catering sets a great example about how they have sustained their business online by delivering surplus foods on bicycles around London. Elysia Catering are not only a prime example of keeping the supply chain alive through this pandemic but follow an environmentally friendly practice by reducing carbon emissions by reducing food waste & delivering food on bicycles and thus contributing to reduction of air pollution across London. https://elysia-home-deliveries.myshopify.com

Moving food markets and farmers' markets online

A huge number of delivery slots of above 300,000 have been opened by major UK's super markets to deal with the upsurge in customer demand [link to source]. New recruits are equipping stores to streamline operations in numbers of many thousands. Although the government has allowed food markets to remain open in the UK, many have naturally become cautious of going out in the public and physically buying their food from open markets. This has caused food producers and suppliers around the world to change the way they market and distribute their food rather than the usual face-to-face markets who have now moved to online delivery services. Many online supermarkets such as Ocado and others such as Tesco, Asda etc have seen massive spikes in online grocery orders. The online ordering system especially essential to vulnerable people who are required to stay at home and isolated as as per government recommendations, during this pandemic.

Many food owners have taken this opportunity to adapt their business to become resilient and sustainable during this pandemic. In the retail industry, UK retail giant Primark faced massive drops in profit due to not having an online store as many of their other retail competetors. This is why now more than ever; food retailers have to move to online markets in order to maintain steady revenue and keep their businesses afloat.

Life after lockdown

With many changes taking place in the supply chain, many food companies will need to adapt and rethink strategies to sustain their businesses once the lockdown measures are lifted- will businesses ever go back to what we call 'normal'? or will there be a 'new normal' to which everyone will be forced to enter and accept. The food supply chain will need to be more resilient in accepting the new normal and prepare itself accordingly in various dimensions. There will be a change in perceiving the value of food, especially given the huge push on buying more nutritional and high-quality foods by many who are currently focusing on building their immune health in the post-pandemic period.

Many farmers and food producers are now focussing on producing high quality produce which can rebuild customer confidence after this pandemic. Supermarkets and non-essential shops have already resumed to regular activity in many cities, however without failing to compromise on adhering to social distancing rules, meaning less customers on the premises at once. In due course of time, customers are expected to slowly regain their trust on supermarkets and local food producers. A rise in the number of smaller food producers using online platforms, and digitalising their food businesses is most likely, to meet with new normal requirements off ood safety, storage and delivery. This is now the time when food companies can incorporate new innovative technologies such as Big Data & IoT in food supply chains to assure high standards of food quality.

REAMIT Project lead, Prof. Ram Ramanathan delivered a plenary talk on REAMIT at an online international conference

REAMIT project lead, Prof. Ram Ramanathan was invited as a keynote speaker at the 3rd International Industrial Engineering and Operation Research conference in March 2020. This event was due to take place in Istanbul, Turkey but then became an online conference.

Prof. Ramanathan's plenary talk was titled "Improving Operations and Sustainability of Agribusiness Supply Chains using Internet of Things sensors and Big Data Analytics" and was delivered online on 25th June 2020.

Impact of COVID-19 on REAMIT pilot tests

While several aspects of the project have been affected by the lockdown, some activities continued in spite of the lockdown.

Currently there are 3 running REAMIT pilot tests by the University of Nantes, France, a fruit and vegetable supplier in Germany and an online supermarket in the Netherlands which has now been paused due to the current pandemic. Laboratory works at the University of Nantes in France, have slowly begun post lockdown and first results are expected by end of July. Our Dutch partner, Whysor has reported some delays with both pilot test partners due to COVID-19. For the German pilot, some sensors have been installed, while execution of further steps is facing problems because of limitation of human resource at the primary site of implementation.

The Dutch pilot is affected by the large influx of online food orders and consequently, fewer resources available for research. The progress with the Dutch pilot is therefore slower and less fruitful compared with the initial expectations. Nevertheless, if this situation changes in the near future and industries gradually start returning to their business, REAMIT pilot tests can be expected to resume slowly. This is because companies may not prioritise research in the coming months and delays in procurement may further delay pilot tests.

REAMIT is hopeful of recruiting some more end-users for pilot tests. In February 2020, talks commenced with several new companies interested in participating in REAMIT pilot tests. These talks have been subsequently put on hold due to the pandemic but are expected to resume soon as businesses in Europe are beginning to come out of the lockdown.

Update from Ulster University - Trials with meat supplier in NI

Ulster University has been continuing where possible with the upcoming trials for a meat supplier in Northern Ireland. Further meetings have been held internally to establish a method of detecting the Clostridium Esters bacteria. Currently, this is an ongoing discovery process with Qualitative Real-Time PCR identified as a potential solution.

For the secondary dry-ageing trial, Ulster University is currently working with Whysor to discover the most appropriate LoRaWAN sensors for installation within dry-ageing chambers. It is hoped that quality and weight loss of meat within these chambers can be detected and eventually prevented using these sensors.

REAMIT Big Data Hub launching at the University of Bedfordshire

Our lead partner, the University of Bedfordshire are due to be launching the REAMIT Big Data Hub amidst some delays due to the lockdown.

In recent months, the University of Bedfordshire has launched the procurement process for Big Data Hub equipment. The plan of purchasing a Big data hub hardware equipment was approved before end of June 2020 by University of Bedfordshire IT services and is currently undergoing further stages of procurement. However, the installation may need to be postponed if the University of Bedfordshire remains closed also during the summer months. Thus, even though at the moment, there is no impact of COVID-19 in the university on this activity, we expect there may be a delay of 3 months if the university remains closed until September 2020.

REAMIT Research: Sensor technology

REAMIT research staff are currently involved in developing a research article that comprehensively captures the tacit knowledge of sensors and documents widely accepted choice of sensors for different types of perishable food products dealt within the REAMIT project (fruit vegetables, meat and fish) under different combinations of selection criteria and surrounding environments.

The study aims to arrive at the best choice of sensors by accumulating and analysing relevant pieces of scientific literature and more importantly by interacting and conducting interviews with the practicing industry. Sensor providers and the companies who have worked and contributed to the development of sensor data collection platforms have been approached. Battery drain, purchase price, type of food packaging (packaged, unpackaged, combined), location, temperature, humidity and connectivity are a few of the important factors considered for evaluating best sensor choices in this study.

Professor Ram Ramanathan delivered a talk on the sensor review paper at the European Operations Management Association conference online on 26 June 2020.

Congratulations to REAMIT project partner from Ulster University, Dr. Joan Condell who has recently earned the title of Professor. Well done to Prof. Joan Condell, on behalf of the team at REAMIT