Module Syllabus

MIM114
Supply Chains 4.0 for Digital Consumers

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Term, year:	Winter, 2025
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GBSB GLOBAL
BUSINESS SCHOOL

1. Module Description

The Supply Chains 4.0 concept goes together with digital transformation and Industry 4.0, bringing innovation in terms of thinking, managing and delivering products to customers. Implementing new intelligent technologies together with promoting changes in the business culture are some of the key elements that will allow digital transformation to reach the entire distribution chain, from storage to distribution including retail and last mile operations. Omnichannel retail refers to a multichannel approach to selling products in which customers will be able to switch between digital and traditional channels according to their needs. The dynamics of Industry 4.0 will require managers to develop specific knowledge and skills in digital technology. This unit prepares students studying operations and supply chain management for professional success in the Industry 4.0 by equipping them with knowledge and skills required from modern and innovative operations managers.

NOTE: The content of this module is regulated by the Malta Further and Higher Education Authority (MFHEA).

2. Module Learning Outcomes

Competencies – at the end of the module/unit the learner will have acquired the responsibility and autonomy to:

a) C.1. Demonstrate the ability to respond to the fast-changing business environment of the retail industry by formulating adaptable strategies that help gain competitive and comparative advantages and reformulating existing strategies if needed;
b) C.2. Manage and transform work contexts in operations and supply chains that are complex and unpredictable and require new strategic approaches related to implementation of digital technology;
a) C.3. Create a research-based diagnosis to problems in operations by integrating different concepts from the domain of the Industry 4.0 and supply chain 4.0;
b) C.4. Demonstrate autonomy in the direction of learning about Industry 4.0 and digital supply chains and a high level of understanding of learning processes.

Skills – at the end of the module/unit the learner will have acquired the following skills:

Applying knowledge and understanding

The learner will be able to:

a) S.1. Demonstrate capability in using knowledge and skills of retail supply chain management to develop an omnichannel retail strategy that includes effective pricing approaches, efficient support workflows and service offerings, and last mile and reverse logistics;
b) S.2. Be able to adopt to the fast-changing business environment and day-to-day variations and changes by designing approaches to eliminate and mitigate risks caused by last mile and reverse logistics operations with the purpose to run profitable, efficient, and well-managed stores;
c) S.3. Develop new knowledge and procedures in areas such as analytics, AI and the IoT (Internet of Things) to plan the implementation of these technologies into the digital supply chain and to integrate these knowledge and procedures into a portfolio of innovation initiatives;
d) S.4. Demonstrate capability in using data referring to business analytics to better forecast and execute operations and to make faster and better decisions. *Judgment Skills and Critical Abilities* – at the end of the module/unit the learner will have acquired the following judgement skills and critical abilities:

The learner will be able to:

a) JS.1. Perform critical evaluation of last mile and reverse logistics structure with the purpose to minimise risks and manage customer expectations;
b) JS.2. Critically analyze the quality and quantity of available data required in the decision-making process related to supply chains;
c) JS.3. Perform critical evaluation of an organization's capacity for change, transformation, and supply chain digitalization and analyze the impact of implanting Industry 4.0 technologies on the supply chain.

3. Module Topics and Content

Week	Topics and Content	Class Activities	Assessment	Readings
Week 1	*Class 1:* Module Introduction Introduction to Supply Chain Global Supply Chain Management	***Debate and Discussion on Globalization and Global Supply Chain (45 min)*** The students are going to discuss globalization and its impact on supply chain practices, the challenges and any possible adaptation needed to perform in this new VUCA environment. - Globalization is forcing companies to create more diversified and international supply chains. - Operation and cost control in international and diversified supply chains are difficult and inefficient. - The supply chain in the retail industry is different from other business sectors such as B2B businesses. *It is a group activity, and the size of the group is 2-3 students. The task will be presented by discussion in class.*		Berman, B., Evans, J. (2017). *Retail Management: A Strategic Approach (13th ed.)* London: Prentice Hall. Chapter 3- PP68-105 Chaturvedi, N., Martich M., Ruwadi, B., & Ulker, N. (2012). *The Future of Retail Supply Chains.* Mckinsey. PP59-67. Retrieved from: https://mck.co/3jrkZIN
	Class 2: Introduction to Retail Management Go-to-Market Strategy Strategic Planning in Retail Retail's Omnichannel Priorities	***Direct Question and Response (30 min)*** Lecturer will prepare some direct questions related to: - Different strategies in international market expansion. - Different strategies to launch the products in new markets. - Why companies are trying to implement omnichannel strategy in their operations.		Berman, B., Evans, J. (2017). *Retail Management: A Strategic Approach (13th ed.)* London: Prentice Hall. Chapter 1 (PP 4-34) & Chapter 8 (PP 220-241) Video: Omnichannel: Retail

	Using Data and Analytics to make Decisions in the Retail Industry	- Which date do we need to finalize any purchasing decision?		(r)evolution. Retrieved from: https://youtu.be/5SAtdSM0Trk
Week 2	*Class 3:* Retail supply chain best practices (risk mitigation, green alternatives, end-to-end alignment, pricing strategy to increase profitability, product cost and discounts impact on operations)	*Group Problem-solving (45 min)* Groups of 3-4 students must identify the major contributors for each of the following challenges which retail supply chains are facing. 1- Increased costs throughout the supply chain and tight profit margin 2- Supply chain complexity due to multiple channels to market 3- Meeting customer expectations 4- Omnichannel integration 5- Embracing new supply chain technology	*Formative Assessment 1* **Case study - Find "Good Stuff Cheap" at Ollie's Bargain Outlet (15%)** Refer to section 4.1.1.1. To be uploaded on the VLE.	Berman, B., Evans, J. (2017). *Retail Management: A Strategic Approach (13th ed.)* London: Prentice Hall. Chapter 13- PP356-383
	Class 4: Consumer behavior in retailing (consumer orientation, consumer motivation, influence of culture, components, and impact of communication)	*Feedback from Classmates (45 min)* Students will answer the following questions and receive feedback from other classmates on what they are proposing to each question. How different is the consumer behavior in online and offline retail environment? Can we follow customer orientation strategy in diverse cultures and environments? How can communication change the customer behavior in retailing?		Berman, B., Evans, J. (2017). *Retail Management: A Strategic Approach (13th ed.)* London: Prentice Hall. Chapter 7- PP 194-219 Video: Retail 2020: 5 Technologies That Will Change the Way You Shop. Retrieved from: https://youtu.be/iRvaWHk3A8k
Week 3	*Class 5:* Role of social media, advertising, and promotion in supply chain (social business ecosystem, communities, customer engagement or disengagement actions,	*Research Project (45 min)* Each individual student needs to pick one of the following topics: - Instagram - Facebook - Telegram - WeChat - LinkedIn - Communities	*Formative Assessment 2* **Project Output Deliverable 1 (in groups of 4) (20%)** *"Internationalization and supply chain improvement"* Refer to section 4.1.2.1.	Berman, B., Evans, J. (2017). *Retail Management: A Strategic Approach (13th ed.)* London: Prentice Hall. Chapter 6 PP 160-193

| | | communication tools, B2C operations) | Prepare a short report on how companies are using these tools to do advertising, engage with the customers, find suppliers etc.

You can look for real use cases online to find relevant resources to prepare your reports. | To be uploaded individually on the VLE. | |
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| | **Class 6:**

Electronic Marketplaces

E-business Tools used in the Retail Sector for B2B Supply Chain Management

Customer Lifecycle and Risk Management | **Individual Work (45 min)**

Each student must look for 3 Electronic marketplace or e-business tools and explain how these tools are helping companies to improve the productivity of supply chain. | | Wentworth, C. (2018). *The Supply Chain Gets Smarter. MWD Advisors, PP1-12.* Retrieved from: https://bit.ly/35u7frS |
| **Week 4** | **Class 7:**

Measuring and improving the overall customer service levels through operations | **Learning by Doing (45 min)**

Students need to create groups of 3-4 and choose one of the following companies and explain how they are improving the overall customer service level.
- Amazon
- LL Bean
- Zappos
- Overstock.com
- QVC
- Kohl's
- Nordstrom
- Publix
- Lands' End
- JC Penny | **Formative Assessment 3**

Case study - Making Technology Personal: How Wayfair Is Leveraging High-Tech Tools to Connect with Consumers (15%)

Refer to section 4.1.1.2.

To be uploaded on the VLE. | Berman, B., Evans, J. (2017). *Retail Management: A Strategic Approach (13th ed.)* London: Prentice Hall. Chapter 2- PP34-67 |
| | **Class 8:**

Understanding of last mile and reverse logistics and its impact on e-commerce and omnichannel supply chains

Understanding of the green dimension in retail supply chains | **Case Study (45 min)**

The Sustainable Last Mile

Refer to the section 4.3.1. | | Lim, S., Winkenbach, M. (2019). *Configuring the last-mile in business-to-consumer e-retailing. California Management Review,* February. PP 132–154 |

				Video: E-retail: the Last-mile Problem. Retrieved from: https://youtu.be/q-vNERAUxU8
Week 5	*Guest Speaker Session*			
Week 6	*Class 9:* Reviewing modern technology that improves the impact of last mile and reverse logistics on green dimension and productivity of retail supply chains	*Research Project/Feedback from Classmates (45 min)* In groups of 2-3, research which are the technologies that would be able to improve the last mile delivery and sustainability performance of the retail supply chain (at least 3 technologies). Explain the challenges or problems which these technologies can solve. This is followed by a class discussion where students give feedback to each other.		Reinartz, W., Wiegand, N., & Imschloss, M. (2019). *The Impact of Digital Transformation on the Retailing Value Chain. International Journal of Research in Marketing*, 36(3), 350-366.
	Class 10: Approaches to selecting and using data and analytics for decision-making related to supply chains How to use descriptive, predictive, and prescriptive analytics to reduce disruptions and keep facilities operating at peak efficiency	*Debates and Discussions (20 min)* In groups of 3-4 discuss the following points: Descriptive, predictive, and prescriptive analytics are important to reduce disruptions in retail supply chain. Predictive and prescriptive analytics are important to improve the efficiency and reduce the costs of retail supply chain. This is followed by a class discussion.		Berman, B., Evans, J. (2017). *Retail Management: A Strategic Approach (13th ed.)* London: Prentice Hall. Chapter 8- PP 220-241
Week 7	*Class 11:* Introduction to Industry 4.0 Understanding of challenges, benefits and myths associated with Industry 4.0	*Flipped Classroom* At home, prior to the class the students will read: "Implementation of supply chain 4.0 in the food and beverage industry: perceived drivers and barriers" and "Industry 4.0 and supply chain performance: A systematic literature review of the benefits, challenges, and	*Formative Assessment 4* **Case study - Get It, Go, Just Walk Out: Amazon's Proposed Reinvention of the Checkout Process (15%)** Refer to section 4.1.1.3.	Schwab, K. (2016). *Industry 4.0: The Industrial Internet of Things,* Apress *PP195-215*. ISBN: 978-1484220467

		critical success factors of 11 core technologies"	To be uploaded on the VLE.	
		They will also watch the video: The best explanation of the Fourth Industrial Revolution ever		
		https://www.youtube.com/watch?v=okXk4Bnz2Lc		
		In class the students work on the following two activities:		
		Group Work ***Groups of 3-4 (1 hour)***		
		Identifying different barriers and challenges, the companies are facing during the implementation process of different technologies in their supply chain. (IOT, Blockchain, IOP, Cloud computing, Simulation, Augmented reality, Big data, Robotic and Automation)		
		Group Problem-solving ***Groups of 3-4 (1 hour)***		
		Each team must synthesize the attributes and performance of the following technologies and describe which technologies can complement the others. And, if it is advantageous to integrate all the following technologies simultaneously in supply chain digital transformation. - Internet of Things - Blockchain - Big Data - Artificial intelligence and machine learning - Cloud Computing		
	Class 12: Evolution of 4.0 technology including 3D printing, sensor technology, artificial intelligence, robotics, drones, and nanotechnology Impacts of industry 4.0 on CRM, SRM,	***Group Work (45 min)*** Each group of 3-4 students must choose one of the following operational systems and evaluate the effect of different technologies on performance and efficiency of the system. - CRM - Demand management - SRM - CSM - Order fulfilment		Taylor, G. (2019). *Robotics Move Beyond Warehouses to Stores and the Last Mile. Trendwatch.* Retrieved from: https://bit.ly/37zzUOT Pantano, E., & Vannucci, V.

	CSM, demand management, order fulfilment, product development and commercialisation, and returns management	- Product development and commercialization		(2019). *Who Is Innovating? An Exploratory Research of Digital Technologies Diffusion in Retail Industry. Journal of Retailing and Consumer Services*, 49, 297-304.
Week 8	***Class 13:*** Transformation of supply chains in recent years by looking at Industry 4.0 environment Intelligent supply chain Ways to collaborate faster and smarter across the value chain	***Direct Question and Response (30 min)- Individual activity*** The students are going to answer the following questions: - Give me some examples for digital transformation in supply chain in recent years? - What are the benefits of this transformation? - Digital transformation in retail supply chain is more beneficial for SMEs or big enterprises? - What are the barriers for this transformation? - Do you think it is necessary for global supply chain to experience this transformation?	***Formative Assessment 5*** **Project Output Deliverable 2 (in groups of 4): "Industry 4.0 technologies and Supply chain transformation" (25%)** Refer to section 4.1.2.2. To be uploaded on the VLE.	Schwab, K. (2016). *Industry 4.0: The Industrial Internet of Things.* Apress PP 1-31. ISBN: 978-1484220467
	Class 14: The latest trends in the supply chain 4.0 including visibility as a service, high degree of cyber-physical interconnection for real time decisions, integrated policy frameworks between countries Outline the steps involved in	***Problem-solving (15 min)*** Blockchain as one of the recent and important technologies is trying to solve problems in the retail industry, by introducing practical solutions. Students must look for at least 1 white paper, published in https://www.icomarkets.com/icos/retail and uncover the challenges and workable solutions which Blockchain technology in line with other technologies can solve.		Chaturvedi, N., Martich M., Ruwadi, B., & Ulker, N. (2012). *The Future of Retail Supply Chains.* Mckinsey. Retrieved from: https://mck.co/3jrkZIN

	converting a traditional supply chain into a digital supply network	It is important to identify the challenges and the solutions. It is a group activity in groups of 3-4 students. ***Feedback from Classmates (25 min)*** It is a group activity and each group must present what they found in their paper analysis and ask for feedback from other classmates.		
Week 9	*Class 15* Revision			
Week 10 & 11	*Submission of the Summative Assessment Activities*			

4. Module Assessment

The assessment of this Module consists of Formative and Summative assessment activities listed in the table 1 below:

Table 1:

Face-to-Face 100%	
Formative	*Summative*
16.5 hours	13.5 hours
Set Exercise/Case Study - 45%	Set Exercise/Case Study (1000 words) – 40%
Project Output Formative Submission (in groups) - 45%	Project Output (2000 words) – 60%

*Prefinal grade is based on the Formative Assessment activities, and it is not a part of a module final grade. **Students should have more than 50 points of the prefinal grade to be allowed to submit summative assessment activities which represent module final grade.***

Table 2:

Formative	Summative
Oral Assessment/ Online Participation: Each week, students will participate in a discussion forum, with questions covering the topics of the week. This will help students to be in contact with different perspectives due to the diversity of participation, as well as to develop proficiency in understanding and applying concepts and developing critical thinking.	

Set Exercise/Case Study: Students will be asked to provide a solution consisting in different marketing approaches to omnichannel implementation and decide how operations strategy should be adjusted according to each channel including the variables to evaluate the go-no-go decision.	
Project Output Formative Submission: Students will have an opportunity to receive feedback on a partial submission of the project output. Each group will have a different type of company and students will work in groups.	**Project Output:** Students will be asked to evaluate the impact of implementation of several new technologies in a fictitious company with *real world* characteristics and will be working on it throughout the unit. Each member of the group will be submitting their project output individually evaluating the impact of one of the technologies.

The passing grade for the module is 60%.

4.1. Formative Assessment

4.1.1. Formative Assessment- Case study

4.1.1.1- Find "good stuff cheap" at Ollie's Bargain Outlet

Ollie's Bargain Outlet describes itself as "one of America's largest retailers of closeouts, excess inventory, and salvage merchandise." It offers drastically reduced prices that attract hordes of customers to hunt for treasures, prompted by the brand's urgent slogan that "when it's gone, it's gone."

As a regional player, Ollie's is headquartered in Harrisburg, Pennsylvania. In 2004, it operated 30 stores in the mid-Atlantic region of the United States. Since that time, though, it has been on an aggressive growth trajectory, with 393 stores and counting. It went public in 2015, a move that fueled the pace of its expansion even more. It also has been opening stores to the south and west, such that it now has stores in 16 contiguous states. Its ambitious goal is to reach 950 stores across the United States in the coming years.

Background and Retail Strategy

Ollie's positions itself as a hybrid of an off-price and an extreme-value retailer. However, it is formally classified as a miscellaneous retail store (SIC 5999) rather than an extreme discounter because it offers an ever-changing assortment of merchandise. Similar concepts leveraged by Big Lots, Ross Dress for Less, and TJX Companies (i.e., T.J.Maxx, HomeGoods, Marshalls, and Sierra Trading Company) all feature aggressively priced merchandise, designed to sell a lot of discontinued goods or overstock items from other retailers and manufacturers. Another similarity among these retailers is their comparative lack of fastidiousness, compared with department and specialty stores, when it comes to displaying merchandise neatly. If a customer happens to move a garden hose to the tools section, the retailer does not worry too much because the next customer who encounters the hose might think that she or he found the last one and move to buy it quickly.

To support this retail strategy, Ollie's highly experienced buying team procures an ever-changing assortment of merchandise, mostly fast-moving consumer goods, housewares, books, toys, tools, and do-it-yourself building materials.

(The vast list of the diverse types of merchandise offered at Ollie's is available on the company's website: www.ollies.us/what-is-ollies/store-departments/.) Vendors of all sorts willingly sell their wares through Ollie's because the win–win situation helps them liquidate their excess merchandise. The excess might be leftovers from a previous season or inventory

remaining due to excessive purchases, as well as poorly selling items, products with out-of-date labeling or packaging, or items that have suffered some minor damage. Ollie's buys merchandise that is not quite fit to sell at higher-end stores and offers the vendors favorable conditions. For example, it pays vendors in cash and does not demand return privileges.

The buying team also leverages its long-standing relationships with hundreds of manufacturers, wholesalers, distributors, brokers, and retailers worldwide. It selectively chooses from among a broad range of brand-name and discontinued products, then passes on the savings from the opportunistic deals it negotiates to customers—it can offer prices as much as 70 percent below department and specialty stores' levels. Approximately 70 percent of Ollie's merchandise features national brand names; private-label and unbranded stock constitute the remaining 30 percent. Furthermore, the retailer makes an explicit point to not depend on any single supplier for more than 5 percent of its inventory.

Merchandising

Merchandise placement in stores changes according to how the inventory fits best, rather than being assigned to predetermined locations, as in a typical department or home improvement store. If the buying team purchases a large amount of a particular type of merchandise (e.g., laundry detergent with old labels, patio furniture overruns, discontinued Paula Deen cookware, about-to-expire K-cups), Ollie's stores clear out an area toward the front, near the entrance, and present massive table displays.

In addition, handwritten signs, drawn with thick markers and often faded over time by sunlight, hang in the windows to announce the arrival of recent shipments of priced-to-sell merchandise. Toys account for one of Ollie's biggest categories, especially around the holidays; Ollie's also earns a disproportionately high amount of its sales during the holiday period.

Discussion Questions (Submission should be no longer than 500 words)

1. Perform a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis for Ollie's. If you were able to invest in Ollie's, would you? Why or why not? (40 marks)

2. Describe Ollie's target markets. How are they similar? Different? (30 marks)

3. Compare Ollie's retailing strategy to Macy's and Marshalls. (30 marks)

4.1.1.2- Making Technology Personal: How Wayfair is leveraging high-tech tools to connect with consumers

The furniture retailer Wayfair was amongst the first e-commerce sites in its industry, and its first-mover status continues to inform the ways that it expands its value offerings to appeal to online shoppers. Rather than play around with augmented reality or virtual bots just because it can, Wayfair seeks to implement innovative technology to enable its customers to find value and personalized assistance as they seek ways to make their residences into true homes.

On its own website and app, the retailer offers "virtual concierge" services by allowing shoppers to play around with the approximately 18 million products it has available, moving them on a virtual backdrop to experiment with how they might look if put together in their own living room. If they are not quite to the point of picking out furniture items, they can select a decorating style to get inspiration. Or they can upload a picture of a piece they have seen elsewhere and loved, and Wayfair will search its inventory to find something similar. To ensure those shoppers have access to a wide range of options, Wayfair works with multiple furniture brands, in addition to its in-house label, such as Birch Lane, Perigold, and AllModern.

Beyond its own sites and apps, Wayfair also maintains a strong presence on social media and readily facilitates consumers' purchases across whatever digital channels they prefer to use. On Instagram, for example, it posts appealing arrangements of furniture and accessories in a room. When browsers click on an item, the simple move takes them directly to a purchase page. That

page also lists the other, coordinating items at the bottom, so if they want to get the entire look, it is easy for shoppers to do so.

On Facebook, its goal is more focused on expanding its reach, so the videos it posts are often silly and fun. Rather than conventional lamps or tables, these videos tend to feature Wayfair's more innovative furniture offerings, like Murphy beds and hammocks. Aligning the unconventional furniture with quirky, entertaining videos helps Wayfair establish its brand image in a way that appeals to many social media users, including younger consumers who might be looking for something different for their homes and apartments.

In collaboration with Martha Stewart, who launched a "Homeschooling with Martha" digital series during the COVID-19 pandemic, Wayfair also gives viewers a straightforward way to adopt the style icon's decorating tips. Visitors and viewers first interact virtually with Stewart to learn some new recipes and craft ideas. While doing so, they get glimpses of Stewart's own homes and the furniture, decorative accessories, and colors she uses to create different vibes (e.g., a coastal view at Lily Pond, her house in the East Hamptons; rustic chic in her upstate New York Bedford estate; cabin cool at her Skylands property in Maine). When they click through to Wayfair, curated collections with the same names reflect each of these home styles, enabling customers to embrace and install Stewart's various aesthetics in their own homes.

These easy-access formats resonate especially well with Wayfair's intended audience. Its research indicates that its customers tend to be 35 to 65 years of age (though nearly half of all sales involved buyers between 31 and 50 years) who earn about $75,000 annually. But with its modern furniture offerings at a relatively low price point, the retailer also continues to expand its appeal to younger shoppers seeking to furnish their first homes, which includes the approximately 80 million Millennials who have long embraced virtual shopping.

Wayfair does not maintain physical stores (except for a single outlet store in Florence, Kentucky), prompting comparisons that call it the "Amazon of furniture." And in the online retail furniture market, it even outpaces Amazon, accounting for 33.4 percent of the market, compared with Amazon's 29.7 percent, as of 2019. Of course, Amazon is unlikely to ignore such competition, and by 2021 it had introduced a premium assembly service, giving consumers the option to have their furniture purchases not just delivered but also put together professionally. Yet Wayfair continues to gain strength, especially as people in COVID-19 lockdown sought to redecorate and spruce up their living spaces.

According to one analyst, only a few retailers have really benefited from the changes induced by the pandemic, and Wayfair is foremost among them. It did not have to worry about whether, when, and how to close its physical stores, unlike competitors such as IKEA—which enjoyed substantial increases in its online sales but still suffered diminished overall sales due to decreased in-store purchases. Instead, Wayfair was able to focus on leveraging its existing advantages and strong digital and social media presence. In turn, its shares and sales continue to increase.

Discussion Questions - 500 words

1. Is it sufficient for Wayfair to stay online, or should it consider becoming an omnichannel retailer? Defend your answer. (30 marks)

2. Current evidence suggests Wayfair has not fully penetrated the Millennial cohort. What else could it do to appeal to younger consumers? (30 marks)

3. Wayfair offers extra services but doesn't necessarily charge higher prices. How does it manage to achieve this value position? (40 marks)

4.1.1.3- Get It, Go, Just Walk Out: Amazon's proposed reinvention of the checkout process

Why would Amazon, with its primarily online offerings, develop new and advanced technology

to facilitate physical, in-store purchasing? Because it knows that such advances can help secure its dominant position for the future, whether it decides to open new physical store operations or sell its technology innovations to other retailers—or both.

Amazon's Just Walk Out checkout technology already is installed in its experimental Go stores, enabling shoppers to gather the items they want and leave without ever going through a checkout line. They use a credit card to gain access to the store, and then sensors, both on each product and throughout the store, to determine what items they have taken and charge the card when they leave. And shoppers love it: According to a recent survey, most refer to their experience in Amazon Go stores as good or excellent. Even people who have not tried the tech themselves note their excitement at the prospect; 57 percent of the people surveyed said they would be thrilled to have such a store open near where they live.

Such responses might reflect their current reality. The Covid-19 pandemic propelled retailers' efforts to find more effective, contactless purchasing options—even more so than Amazon's internal but potentially powerful product development initiatives. For example, both Wegmans and Price Chopper developed checkout apps that shoppers can download, such that they can scan and pay for their groceries in the store using only their smartphones.

Never one to let competitors gain too much ground, though, Amazon has built a shopping cart equipped with the Just Walk Out technology too. Using visual algorithms and advanced sensors, the Dash Cart can determine what items a shopper has put into it. Again, the shopper's credit card gets charged for the purchases, without requiring any further effort by the consumer. In addition, a screen integrated into the cart allows shoppers to sign into their Amazon account so they can track shopping lists they created at home with the help of their Alexa device or double-check prices.

The cart clearly could be installed in various other stores, whether owned by Amazon or maintained by other retailer chains. Those competitors would simply need to invest in purchasing the technology and carts from Amazon to attain a highly sophisticated way to make shopping easier and quicker for their customers. But retailers are not limited to buying Amazon's version. They also can consider other high-tech options, such as those offered by upstart competitors such as Grabango, Caper, Veeve, and Zippin.

Thus, Amazon has taken an enviable lead, but it is not the only actor in the market to provide contactless, automated checkout technologies. To spread its influence and maintain its advantage Amazon reportedly has entered negotiations with other non-grocery retailers located in airports, as well as a national movie theater chain, to license the technology.

For many retailers, the main limitation keeping them from achieving a purchase process that needs no personnel might be the substantial investments required. Virtually all these stores would need to invest in purchasing the technology first, and then also retrofit their locations to install sensors. The excessive costs of such renovations arguably are the main reason that the various cashierless technology options have not spread everywhere. As those costs either come down or get amortized over more time, though, the technology likely will be unavoidable. If Amazon can provide diverse ways for retailers to adopt (i.e., Just Walk Out or Dash Carts), it can leverage its innovation not just for its own stores but by selling it to others as well.

Discussion Questions - 500 words

1. How is Amazon leveraging modern technologies to implement omnichannel strategy? (50 marks)
2. How does the Dash Cart facilitate the spread of the Just Walk Out technology tool? (25 marks)
3. Why is Amazon seeking to sell its proprietary technology to potential competitors? What are the pros and cons of doing so? 25 marks)

4.1.2. Formative Assessment- Project Output

4.1.2.1- Internationalization and supply chain improvement

In less than 10 years, RSYS has become Spain's leading household retailer and a strong player in other countries, such as European countries, South Korea, Japan, and Taiwan. The company's sales have grown at double-digit rates since 2012, thanks to aggressive pricing policies and elevated levels of quality, a combination that has proven irresistible to customers around the world. The tremendous growth over the past few years has forced companies to place greater emphasis on optimization, integration, sustainability, and customer value creation across their supply chain. In this case, Tony Mora, the CEO of the company, revised several aspects of the supply chain and concluded by making some radical changes to operational aspects of the entire supply chain and planning to do a digital transformation, in line with the industry 4.0 technological revolution. But for the first step, it's necessary to identify some key performance indicators (KPIs) to evaluate the performance of numerous factors that Tony wants to improve in the supply chain. (Optimization, Integration, Sustainability, and Customer Value Creation).

Required: Explain these four factors (Optimization, Integration, Sustainability and Customer Value Creation) in the supply chain and identify at least four KPIs for each one of them.

(Submission should be no longer than 1000 words).

4.1.2.2- Industry 4.0 technologies and supply chain transformation – 800-1000 words

After Tony received the evaluation framework and corresponding KPIs to evaluate the improvement of the supply chain, he asked for more information on the different technologies, which are introduced in Industry 4.0. The result was to find 11 technologies, as follows:

- ✓ Internet of things (IOT)
- ✓ Internet of People (IOP)
- ✓ Big Data
- ✓ Cloud Computing
- ✓ Blockchain
- ✓ Simulation
- ✓ Augmented Reality
- ✓ Automation
- ✓ Robotic
- ✓ Semantic Technologies
- ✓ Additive Manufacturing (AM)

Supply chains and retail businesses are already using some of these innovative technologies, but the full completion of Industry 4.0 comes to the front when they use it together. But Tony knows that implementation of all the technologies is not feasible, and to have better results, it's better to start with some compatible technologies for the retail industry and then add more technologies.

Required: In this submission, we ask you to review all the introduced technologies in Industry 4.0 and select four technologies that you believe are more compatible with retail industry properties and can help this company to make necessary improvements as we found in previous submission. You need to explain in detail each one of the selected technologies and explain how we can integrate each technology into the retail industry. (100 marks)

4.2 Summative Assessment 1 – Case Study – 40%

Task

Case study: Fast Fashion and Fast Digital Upgrades by H&M

Digital retailing has been gaining in popularity and profitability in recent years. With the global Covid-19 pandemic and widespread shutdowns of traditional retailers, its growth has expanded even more and faster. In 2020 alone, U.S. customers spent more than $800 billion shopping online—the greatest annual rate of e-commerce growth in nearly 20 years.

In this growing, competitive, fast-moving sector, one of the world's largest fast-fashion companies aims to leverage its digital commerce platforms flexibly, quickly, and responsively to maintain its lead.

It is not as if the idea is new to H&M. The retailer has long recognized the appeal of digital retailing; it was engaged in concerted efforts to help shoppers buy anywhere, anytime, and in any way, they chose even before the pandemic. Thus, when Covid-19 shutdowns required H&M to close more than 80 percent of its physical stores, it still could turn a profit. Many of its competitors did not fare nearly as well, and some retailers were even forced into bankruptcy. But with its strong existing digital presence, H&M achieved stability and consistency, and those outcomes have reinforced its plans to continue this focus on its digital platforms instead of brick-and-mortar stores.

Already, H&M offers a top-of-the-line e-commerce experience. Customers can easily browse fashion trends, view close-up images of selected products to assess their quality, and pay using nearly any method (credit card, PayPal, H&M × Klarna installment program) they choose.

A voice app available through Google assistant supports orders for both clothing and home accessories. And the retailer's Monki sub brand is developing its own reputation for innovative, augmented reality and streaming efforts that include high-def, incredibly realistic holograms. But to maintain this leading edge, H&M also continues to experiment with ways to improve its customers' digital experiences.

For example, an inherent limitation of e-commerce is the lack of ability to try on clothing before buying it. Therefore, in a partnership with NeXR Technologies, H&M is developing a better digital fitting room. Shoppers can scan their bodies, which will produce a virtual avatar that represents their physical form precisely. The fitting room app then enables them to place various pieces of clothing on the avatar to see which neckline is likely to look best and which pair of pants might run a little small for them. In addition to aiding consumers and giving them a new way to interact with the product offerings, the digital fitting room holds promise for reducing the amount of returns that H&M receives from e-commerce shoppers.

But if the digital avatar is not sufficient for some shoppers, H&M still wants to help them find what they want through digital channels. In the H&M app, shoppers will soon be able to turn on the "in-store mode" to determine which pieces are on the racks in their local stores. This option predicts a scenario that is easy to imagine: Say you are browsing the app and find a shirt and matching scarf that you love. But you are not sure if the shirt will be long enough if you wear low-rise jeans, so you want to try it on with your favorite pair of jeans before buying it. You know you are going to want the scarf regardless, though, and you do not want it to sell out. So, to facilitate your shopping experience, the app allows you to confirm the shirt is available, in the sizes and colors you want to try before you head to the store. During the same session, you can place the order for the scarf to ensure it will be waiting for you when you get there. Then with H&M's Click & Collect service, you can go grab the scarf as well as try on the shirt to decide whether to buy it as well.

Discussion Questions

1. What is H&M's digital strategy? (20 marks)

2. Which modern technologies could help H&M to make a successful implementation of omnichannel strategy? Explain how. (30 marks)

3. Do you think the pricing strategy should be different in different retail strategies (In-store

and Digital channels) in H&M? Why? (20 marks)

4. Explain how an omnichannel strategy in H&M can solve the fulfillment and delivery issues in digital retail strategy. (30 marks)

Objectives

By doing this task, students are going to show the level of acquired knowledge in omnichannel strategy, using new technologies to facilitate transmission process from in-store to omnichannel strategy in fast fashion industry and evaluate the changes in operational and strategic decisions, by implementing omnichannel strategy.

Guidelines

- All submissions must be in Microsoft Word (.doc or .docx) and formatted in 12-point Times New Roman and double-spaced.
- Submissions should be no longer than 1000 words
- Set margins at 1 inch from top, bottom, and sides.
- In-text citations using APA referencing style are required throughout. Cited works must correspond to the works listed in the "References" section.

Evaluation Criteria – Rubric

Criteria	Identification of Main Issues	Analysis	Solutions	Research	APA structure and format
	• Clear explanation of key strategic issues. • The problems, scope, and seriousness were clearly identified in the discussions. • There was a well-focused diagnosis of strategic issues and key problems that demonstrated a good grasp of the company's present situation and strategic issues. • Effective Executive Summary. • Did not waste space summarizing information already found in the case.	• Logically organized, key points, key arguments, and important criteria for evaluating business strategies were easily identified. • Critical issues and key problems that supported the Case Analysis were identified and clearly analyzed and supported.	• Specific recommendations and/or plans of action provided. • Specific data or facts were referred to when necessary to support the analysis and conclusions. • Recommendations and conclusions were presented and supported in an effective manner.		• Proper organization, professional writing, and logical flow of analysis. APA formatting. • Logically organized, key points, key arguments, and important criteria for evaluating the business logic easily identified. • Key points were supported with a well thought out rationale based on applying specific concepts or analytical frameworks to the data provided in the case. • Proper grammar, spelling, punctuation, third person objective view, professional writing, and syntax.
0 to 20 pts	Identifies and understands a few of the issues in case study.	Incomplete or no analysis of the issues.	Little or no action suggested, and/or inappropriate solutions to all the issues in the case study	Incomplete research and links to any readings.	Many errors and a lack of organization.
25 to 45 pts	Identifies and understands some of the issues in the	Superficial analysis of some of the issues in the case.	Superficial and/or inappropriate solutions to some	Limited research and documented links to any	There are more than occasional errors. Variety of

					formatting styles, with some inconsistencies throughout the paper.
	case study.		of the issues in the case study.	readings.	
50 to 80 pts	Identifies and understands most of the key issues in the case study.	Thorough analysis of most of the issues.	Appropriate, well thought out comments about solutions, or proposals for solutions, to most of the issues in the case study.	Good research and documented links to the material read.	There are occasional errors. Good skill level in formatting and organizing material in assignment. Above average level of preparedness, with few formatting errors.
80 to 100 pts	Identifies & understands all the key issues in the case study.	Insightful and thorough analysis of all the issues.	Well documented, reasoned and pedagogically appropriate comments on solutions or proposals for solutions to all issues in the case study.	Excellent research into the issues with clearly documented links to the course text and/or outside readings.	Writing is free of errors. Meets all APA standards. Formatting is excellent.
Grade					

4.2. Summative Assessment 2 – Project Output – 60%

Task

Project Output: How will Industry 4.0 technologies empower retail supply chains of the future?

Back to the RSYS Supply Chain Digital Transformation Project. For the first submission, you created a framework for evaluating various supply chain management improvement factors, and Tony now knows which KPIs in optimization, integration, sustainability, and customer value creation RSYS needs to improve.

Furthermore, for the second submission, you produced the four most compatible technologies which RSYS must integrate in different operational processes to have a successful digital transformation in line with the Industry 4.0 revolution.

But what is not clear to Tony is what the possible results of integrating different technologies will be on different KPIs and, as a result, on varied factors of supply chain improvement. That is why Tony is asking you to prepare a report and explain how integration of ONE technology can improve different KPIs, as we have in your first framework and the possible outcomes of the supply chain improvement.

Objectives

The assignment discusses different steps which RSYS must follow in its digital transformation journey. Students will understand the most important pillars in supply chain improvement and how companies can develop an evaluation framework to evaluate the improvement in their supply chain. Additionally, students will understand which technologies are more compatible with digital transformation in retail supply chain and understand how such technology can be

used for specific and objective improvement in supply chain.

Guidelines

- All submissions must be in Microsoft Word (.doc or .docx) and formatted in 12-point Times New Roman and double-spaced.
- Submissions should be no longer than 2000 words.
- Set margins at 1 inch from top, bottom, and sides.
- In-text citations using APA referencing style are required throughout. Cited works must correspond to the works listed in the "References" section.

Allocation of marks

- 25 marks for each right and justified technologies which the students are identifying in this digital transformation process.

Evaluation criteria – Rubric

Criteria	Identification of Main Issues	Analysis	Solutions	Research	APA structure and format
	• Clear explanation of key strategic issues. • The problems, scope and seriousness were clearly identified in the discussions. • There was a well-focused diagnosis of strategic issues and key problems that demonstrated a good grasp of the company's present situation and strategic issues. • Effective Executive Summary. • Did not waste space summarizing information already found in the case.	• Logically organized, key points, key arguments, and important criteria for evaluating business strategies were easily identified. • Critical issues and key problems that supported the Case Analysis were identified and clearly analyzed and supported.	• Specific recommendations and/or plans of action provided. • Specific data or facts were referred to when necessary to support the analysis and conclusions. • Recommendations and conclusions were presented and supported in an effective manner.		• Proper organization, professional writing, and logical flow of analysis. APA formatting. • Logically organized, key points, key arguments, and important criteria for evaluating the business logic easily identified. • Key points were supported with a well thought out rationale based on applying specific concepts or analytical frameworks to the data provided in the case. • Proper grammar, spelling, punctuation, third person objective view, professional writing, and syntax.
0 to 20 pts	Identifies and understands a few of the issues in case study.	Incomplete or no analysis of the issues.	Little or no action suggested, and/or inappropriate solutions to all the issues in the case study.	Incomplete research and links to any readings.	Many errors and a lack of organization.
25 to 40 pts	Identifies and understands some of the issues in the case study.	Superficial analysis of some of the issues in the case.	Superficial and/or inappropriate solutions to some of the issues in the case study.	Limited research and documented links to any readings.	There are more than occasional errors. Variety of formatting styles, with some inconsistencies throughout the paper.

50 10 to80 pts	Identifies and understands most of the key issues in the case study.	Thorough analysis of most of the issues.	Appropriate, well thought out comments about solutions, or proposals for solutions, to most of the issues in the case study.	Good research and documented links to the material read.	There are occasional errors. Good skill level in formatting and organizing material in assignment. Above average level of preparedness, with few formatting errors.
80 to 100 pts	Identifies & understands all the key issues in the case study.	Insightful and thorough analysis of all the issues.	Well documented, reasoned and pedagogically appropriate comments on solutions or proposals for solutions to all issues in the case study.	Excellent research into the issues with clearly documented links to the course text and/or outside readings.	Writing is free of errors. Meets all APA standards. Formatting is excellent.
Grade					

4.3. Class Activities

4.3.1- The Sustainable Last Mile (Faster. Cheaper. Greener.)

Something unexpected happened to the last-mile delivery during the pandemic—it got greener. With many people stuck at home, e-commerce sales skyrocketed. When supply chains started moving again, the ecosystem adapted fast. Stores became fulfilment centres. Ship from store and curbside pickup emerged. Parcel drop density rose.

Out of sheer necessity, new consumer behaviors and retailers' responses to them changed last mile delivery's carbon footprint. These sustainability gains could produce a remarkably more sustainable last mile. But only with action and smart investment.

The whole last-mile ecosystem—post and parcel organizations, retailers, delivery companies, governments and consumers—is at a tipping point. Go one way, and it can create a truly sustainable last mile. Go the other way, and things worsen unchecked. Local or market-based fulfilment surged during the pandemic.

Retailers accelerated fulfil-from store investments to adapt. These investments will not be rolled back, and now many more items will come from local inventory. This creates an opportunity for new experiences around local fulfilment for consumers and exciting potential for a more sustainable last mile.

To make the last mile greener, it is critical to invest smartly in innovative technologies and balance high- and low-impact opportunities. Local fulfilment strategies are a starting point to drive change, but there are more actions that the ecosystem can take to make a lasting impact. Three fundamentals are key to any plan, and success involves coordinated investment and creative ecosystem cooperation.

1- Incentivize greener choices
2- Rethink asset use
3- Harness data and analytics

Question to be answered individually:

- How can Governments, retailers and delivery companies contribute to successful implementation of these three fundamentals?

5. Module Requirements

A. Core Readings List

1. Berman, B., Evans, J. (2017). *Retail Management: A Strategic Approach (13th ed.)* London: Prentice Hall.

2. Chaturvedi, N., Martich M., Ruwadi, B., & Ulker, N. (2012). *The Future of Retail Supply Chains.* Mckinsey. Retrieved from: https://mck.co/3jrkZlN

3. Ferreira, M. J., Moreira, F., Pereira, C. S., & Durão, N. (2020, April). The Digital Transformation at Organizations–The Case of Retail Sector. *In World Conference on Information Systems and Technologies* (pp. 560-567). Springer, Cham.

4. Hanifan, G. S., & Newberry, C. (2014). The Digital Supply Network: A New Paradigm for Supply Chain Management. Accenture. Retrieved from: https://accntu.re/34q3zl4

5. Lim, S., Winkenbach, M. (2019). Configuring the last-mile in business-to-consumer e-retailing. *California Management Review*, February, 132–154.

6. Pantano, E., & Vannucci, V. (2019). Who Is Innovating? An Exploratory Research of Digital Technologies Diffusion in Retail Industry. *Journal of Retailing and Consumer Services*, 49, 297-304.

7. Reinartz, W., Wiegand, N., & Imschloss, M. (2019). The Impact of Digital Transformation on the Retailing Value Chain. *International Journal of Research in Marketing*, 36(3), 350-366.

8. Schwab, K. (2016). *Industry 4.0: The Industrial Internet of Things.* Apress. ISBN: 978-1484220467

9. Taylor, G. (2019). Robotics Move Beyond Warehouses to Stores and the Last Mile. Trendwatch. Retrieved from: https://bit.ly/37zzUOT

10. Video: E-retail: the Last-mile Problem. Retrieved from: https://youtu.be/q-vNERAUxU8
11. Video: How Do Small-medium, High-mix EMS Companies Leverage Industry 4.0? Retrieved from: https://youtu.be/tFeXOYgagr0

12. Video: Omnichannel: Retail (r)evolution. Retrieved from: https://youtu.be/5SAtdSM0Trk

13. Video: Retail 2020: 5 Technologies That Will Change the Way You Shop. Retrieved from: https://youtu.be/iRvaWHk3A8k

14. Video: The 4th Industrial Revolution. Retrieved from: https://youtu.be/GDlK9f7zHo4

15. Wentworth, C. (2018). The Supply Chain Gets Smarter. MWD Advisors. Retrieved from: https://bit.ly/35u7frS

B. Supplementary Reading List

1. Binnie, L. (2018). *The Future of Omni-channel Retail: Predictions in the Age of Amazon.* Emerald Lake Books. ISBN: 978-945847035

2. Blokdyk, G. (2019). *Retail Supply Chain: a Complete Guide.* 5starcooks. ISBN: 978-0655819691

3. Gibbs, B., Harrison, N. (2019). How Retail Changes When Algorithms Curate Everything We Buy. *Harvard Business Review*, January.

4. Klanecky, A., Portell, G. (2018). How Do Consumers Choose in a World of Automated Ordering? *Harvard Business Review*, May.

5. M. L. Jay. (2017). Building Better Supply Chains with Blockchain. *MHI Solutions*, Q2, pp. 20–26.

6. Mrozek, T. (2020). *Digital Supply Chains, a Practitione's Guide to Successful Digitalization.* Campus Verlag. ASIN: B0824JNYLB.

7. Piotrowicz, W. (2019). *Exploring Omnichannel Retailing: Common Expectations and Diverse Realities.* Springer. ISBN: 978-3319982724

8. Rapp, A., Skinner, L., Grewal, D., & Hughes, D. (2013).   Understanding Social Media Effects Across Seller, Retailer, and Consumer Interactions. *Journal of the Academy of Marketing Science*, 41 (5), 547–566.

9. Sutton, D. (2018). How AI Helped One Retailer Reach New Customers. *Harvard Business Review*, May.

10. Vakulenko, Y., Shams, P., Hellström, D., & Hjort, K. (2019). Service Innovation in E-commerce Last Mile Delivery: Mapping the E-Customer Journey. *Journal of Business Research,* 101, 461-468.

C. General Rules for Submitting Written Assignments

Prior to the assessment and grading, all homework assignments submitted via Virtual Learning Environment (VLE) are checked for plagiarism with the software embedded to the system. Before turning in the first assignment each student is responsible to familiarise him/herself with the *Plagiarism Handbook* available in the VLE.

Written assignments should be typewritten and will only be marked and graded if they are submitted via VLE by the requested time. **Late submissions will not be accepted under any circumstances!** *Being absent shall not be an accepted excuse for not submitting the required homework for the following session.*

Technical issues: the VLE system works functionally well and technical issues almost non-existent. Failure to submit the assignment on a timely basis is typically a result of a misuse of the VLE instructions or simply a missed deadline.

In case a student experiences issues with the submission of a particular assignment, an email should be sent before the submission deadline to the lecturer (with a copy to the Academic Coordinator) along with the screenshot of the technical issue. Each case will be thoroughly investigated, and the ultimate decision will be made by the Academics Department whether the homework should be accepted for evaluation and grading.

D. Attendance

80% attendance is compulsory. Students who miss more than 20% of classes without a justified reason (e.g., medical certificate) will automatically fail the module.

All appointments, including regular medical appointments, should be scheduled outside of class time, as any absence will affect the participation component of the module evaluation. If you are ill and you cannot attend a class, you will need to fill in the Absence Excuse form and provide a valid certificate from a credible medical institution. Under no circumstances is the lecturer involved in considering absence excuses. This responsibility lies with the Academic Coordinator

and the Academic Committee. Please refer to the **Academic Policies and Student Guidelines** for further information.

Students who are late (not more than the first 10 minutes) will be allowed to enter the classroom upon the consideration of a lecturer meaning that if a lecturer started the class and believes that those arriving late may disturb the class, he/she has a right not to allow any late students to enter the classroom. Students over 10 minutes late should NOT be allowed into the classroom until the next break. In case the student is not allowed to enter the classroom in the first part of the class or is late more than 10 min, then the attendance will be rated at **50%** or a half class. This margin of time is not applicable after the mid-class break, i.e., students coming late or not returning after the break will not be allowed into the class and/or will get documented only 50% of presence. Continuous late arrivals by a student gives the lecturer the right to dismiss that student from their class, with a failing grade.

Note: *As entering in the middle of a class session disrupts the entire class and is regarded as disrespectful, students should strictly adhere to the rules. Arriving late or leaving early will be noted and the total time of absences will be calculated by applying the same corresponding rules for continuous tardiness.*