Case Study

ROBOTIC MAIL ITEMS SORTING SYSTEM FOR GREEK POSTS, INDUSTRY 4.0 – A CASE IN GREECE

Keywords: Artificial Intelligence, robotic systems, use of sensors, *shipment of goods, Interconnectivity, data tracking, Industry 4.0*

Background to Case Study.

Sorting of mail items, is a time-consuming process and also requires a large amount of labour. Post services and express companies try to find technical solutions in order to make this process quicker, error free, more effective and cost efficient.
Hellenic post till August 2021 used a manual or semi-mechanic system of sorting in their postal and mail items distribution centre and as tasks were performed mostly by humans, where they were subject to error.

The new robotic system entered in operation in mid-August 2021 and is being developed with the aim of changing the overall data for the Group, drastically upgrading the capacity and speed in sorting and, consequently, in deliveries.
At the same time, it ensures greater security for items and faster service for customers.

Robotic sorting uses artificial intelligence and robotics to sort mail items so humans don't have to. With advanced cameras and technology, these applications are counting on robots to sort mail items, as well as reduce any chance of error that come along with human labor.

Artificial intelligence (AI) is intelligence demonstrated by machines, as opposed to natural intelligence displayed by animals including humans. Leading AI textbooks define the field as the study of "intelligent agents": any system that perceives its environment and takes actions that maximize its chance of achieving its goals.

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Introduction to the Case Study and it's growth within Industry 4.0

The new robotic and fully digital mail items sorting facility began to operate at the Hellenic Post sorting Centre facilities. It is a system – the first of its category in Europe (it is used all ready by Chinese and Japanese companies and by Walmart in USA) that utilizes Artificial Intelligence (AI) technologies for the management of mail items with super-high speed and safety, while at the same time, as mentioned, it reflects the Group's

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commitment to make the Digital Transformation a reality, in which it now invests in practice.
Hellenic post invests in digital transformation, laying the foundations for a different future in the courier industry.

The small yellow robots take the mail item, identify the information on it effectively through a code scan, weigh it and using sensors they carry it to the proper postal sack. The robots are self-charging which means that they are available 24-7. They are self-driven and use technologies with on board sensors that allows them to move fast on the same platform with out crashing.
The robotic sorting system can deliver the following:

- Sorting objects using artificial intelligence with accuracy and security
- Faster & covid free sorting, with automatic weighing and pricing capability
- Faster customer service
- Speed increase +250%
- Ensure delivery in 1 day
- Optimization and utilization of human resources
- Increase profitability
- Improve a customer experience

The Case Study and Industry 4.0 Elements: A Pictorial Overview

The robots receive parcels at 8 infeed stations, identify their destination by scanning a code and distribute the items in 144 sorting destinations handling nearly 76% of total deliveries at the sorting center. One of the great advantages of the application is that it is covid -free as humans are very little engaged in the process of sorting.

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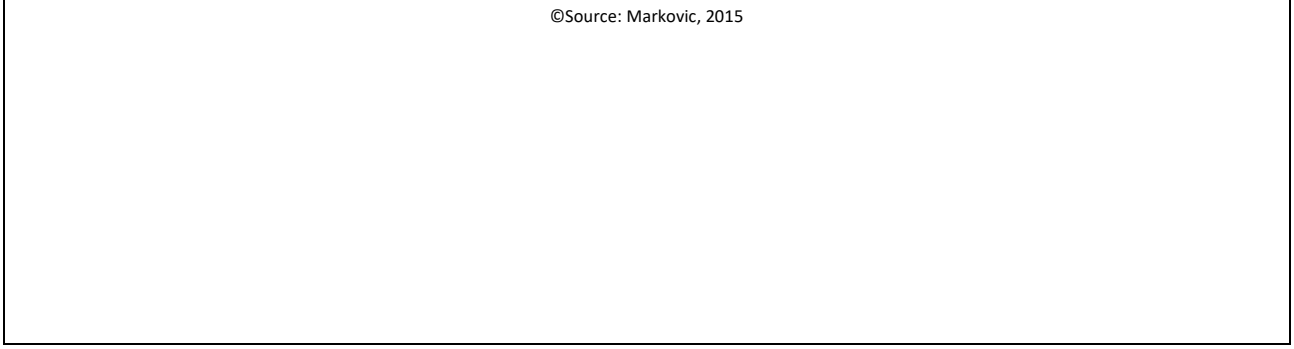

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ROBOTIC MAIL ITEMS SORTING SYSTEM FOR HELLENIC POST, INDUSTRY 4.0 – A CASE IN GREECE

The Element Explored within Industry 4.0 Application.	*Hellenic Post is one of the oldest public services in Greece as it was established in 1828, by the first Governor of Greece, Ioannis Kapodistrias.* *Hellenic Post focuses on the customers and their level of service. It strives to successfully meet their ever-changing needs, promotes innovation, develops new products and continually enriches the services provided. The goal is to strengthen the long-term relationship of trust developed with the millions of customers with whom it comes into contact on a daily basis.* *In the recent years, the company fully achieves all quality objectives in the handling of domestic and foreign mail set by the Hellenic Telecommunications and Post Commission (EETT) and the International Post Corporation.* *Hellenic Post especially invests in the upgrade of its Human Resources skills for its more effective response to the new needs (new products, new technologies) that arise in the rapidly evolving postal environment.* *The development of new, innovative actions is a strategic goal of ELTA. Environment and contribution to the vision of sustainable development are a strategic choice of the*

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	Company. ELTA develops environmental actions and participates in international environmental programs. *Hellenic Post's new investment focuses on sorting, one of the most crucial links in the chain of postal services, in which until today manual and semi-mechanical sorting prevail, which, however, has particularly high demands in time and significant chances of errors, resulting in delays in deliveries.* *The new robotic installation is a tool for the screening staff and allows the Hellenic Post Group to utilize its human resources more effectively and to move decisively in the implementation of its strategic goal, for a holistic rapprochement of public service. At the same time, the installation of the robotic sorting system, as mentioned, reflects in practice the digital shift of the Hellenic Post, marks a huge technological leap and leads the Group to the next day, laying the foundations for the enhancement of profitability and the transformation of Hellenic Post into a healthy, financially independent and competitive business that continues to operate for the benefit of citizens.*
Application Target Audience	*Post and express companies, retail corporations*
Resources Used:	https://www.elta.gr/, https://www.youtube.com/watch?v=b9mO1ZQr4d8 https://www.youtube.com/watch?v=_QndP_PCRSw https://en.wikipedia.org/wiki/Artificial_intelligence
Further Reading:	https://aaai.org/ https://www.livescience.com/47544-history-of-a-i-artificial-intelligence-infographic.html

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	https://www.technologyreview.com/s/602830/the-future-of-artificial-intelligence-and-cybernetics/ http://www.bbc.com/future/story/20170307-the-ethical-challenge-facing-artificial-intelligence

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