How technology helps improves transportation, access to food and healthcare and productivity.

Transportation

Technological improvements over the centuries have yielded cheaper, faster, and better (less polluting, quieter, safer, more reliable) transportation services. Stories about this glorious history are usually in the language of vehicles, facilities, and propulsion.

Freight movements are improving with increased computing power, expanded distribution options, and the possibility of aerial drone delivery. Further, self-driving cars, or at least those with some autonomous features, are coming onto the market and have the potential to further transform how we get around.

How has technology improved transportation and travel?

Travelling has evolved with the advent of technology. Planning a trip is a time-consuming process and people often have difficulty in finding time to plan the trip. Technology has made it easier for people to plan the trip because it saves time and helps in efficient planning.

Few examples of new technologies that helps improve transportation?

Smart Bicycle- is an hybrid e-bike. The Zehus All in One electric motor with the pedal-assist technology allows you the smoothest ride possible. It reaches 25km/h of speed and it charges itself pedaling backwards. It's perfect to move around the city.

Maglev Trains- maglev, also called magnetic levitation train or maglev train, a floating vehicle for land transportation that is supported by either electromagnetic attraction or repulsion. Maglevs were conceptualized during the early 1900s by American professor and inventor Robert Goddard and French-born American engineer Emile Bachelet and have been in commercial use since 1984, with several operating at present and extensive networks proposed for the future.

Multi-Directional Elevator -This multi system elevator are powered by electromagnetic induction system as a result magnetic levitation system which help the elevator car to move sideways as well in upward and downward direction. This technique eliminate the limitation caused by rope, which restrict building height and slow down the elevator car.

Autonomous Navigation -Autonomous navigation means that a vehicle is able to plan its path and execute its plan without human intervention. In some cases remote navigation aids are used in the planning process, while at other times the only information available to compute a path is based on input from sensors aboard the vehicle itself.

Drones -Drones, sometimes referred to as â€œUnmanned Aerial Vehiclesâ€ (UAVs) are meant to carry out tasks that range from the mundane to the ultra-dangerous. These robot-like vehicles can be found assisting the rescue of avalanche victims in the Swiss Alps, at your front doorstep dropping off your groceries and almost everywhere in between.

How important is technology in changing the aspect of transportation?

The need and desire to travel has never been greater and people have looked to technology to improve the quality and efficiency of transportation in every form. New technology can also lead to better passenger experiences, as well as greater safety and security.

Why is technology important in transportation?

The importance of technology in the transport sector increases with the possibility of analysing different routes or knowing in real time if there are any incidents on the road. With these options, it is possible to optimise the transport route to the maximum and thus, save fuel and consequently increase profits.

According to Y. Lin, P. Wang and M. Ma, "Intelligent Transportation System(ITS): Concept, Challenge and Opportunity," 2017 ieee 3rd international conference on big data security on cloud (bigdatasecurity), ieee international conference on high performance and smart computing (hpsc), and ieee international conference on intelligent data and security (ids), 2017, pp. 167-172, doi: 10.1109/BigDataSecurity.2017.50.

Over the past decades, Intelligent Transportation Systems (ITS) have developed and deployed in order to improve transportation safety and mobility, reduces environmental impact, promotes sustainable transportation development and enhances productivity. ITS combines high technology and improvements in information systems, communication, sensors, controllers and advanced mathematical methods with the conventional world of transportation infrastructure. As an inter-disciplinary research field, it is difficult to have a clear picture about the whole system for a novice researcher. This paper proposes an ITS architecture, which is based on the requirement and technology at the present stage, sort out the bottleneck issue that lie behind intelligent transportation research, explores the future prospect of the ITS and research focus as new technologies become available.

Access To Food

How does technology improve food?

The use of robots and machines in the food industry has made the production process much quicker and efficient while also lowering costs, labor, and potential worker injuries at a minimum.

How has technology impacted the food we eat?

A group of researchers have evaluated whether using technology whilst eating has an impact on the amount of food we eat and the memory we retain of the consumption. Being distracted by technology during mealtimes may decrease the amount of food a person eats, nutrition scientists have suggested in a new study.

How has technology influenced the future of food?

The use of machines in food manufacturing is (and will continue) to ensure quality and affordability. By using automated processes and machines, costs reduce, fresh food quality is maintained and productivity improves.

How does technology help food security?

There are numerous places where digital technologies have been used to promote food security. Digital technology **enables farmers and other people to connect with institutions and information that eventually help in decreasing risk and uncertainty**.

Ways how technology is changing our food:

1. GMO- The biotechnology used to create genetically modified organisms (GMO) is critical in food technology, and also notorious. A GMO is something that has been genetically engineered to have certain traits, like herbicide resistance, pest resistance, and increased nutritional value. In 1994, the first modified tomato, the Flavr Savr, was approved by the FDA and put on the market. It quickly led to the development of other seeds, and by 1999, one hundred million acres were farmed with genetically engineered crops.
2. Precision Agriculture- Precision agriculture is often called satellite farming, and refers to the use of GPS tracking systems and satellite imagery to monitor crop yields, soil levels, and weather patterns to increase efficiency on the farm. Precision technology is increasingly important as the issue of feeding 9 billion people by 2050 becomes more apparent. The technology was adopted in the early 1990s, and started with crop yield monitors. Now, there are tools such as weather analysis software and soil testing kits to monitor nitrogen and phosphorous levels.

Using these precision technology systems, farmers can pinpoint an exact location in a field to determine how productive the area is. Before, the entire field was treated as one unit, but now, farmers can find out which areas are more suitable for which crops so they don't waste seed, fertilizer, or pesticides. It is also important from an environmental standpoint — farmers can have more sustainable practices and use less resources such as water to tend their fields.

3. Food Waste Tracking -We know that 40% of America's food is thrown away each year. With the help of social media and new technology, this number can be drastically reduced. Strides are being made with apps and web platforms to put the food to good use. Leloca is an app that helps restaurants minimize waste by allowing people to get deals on food (ranging from 30 to 50% off usually) within 45 minutes of a posting at nearby restaurants. Another app, 222 Million Tons, gives a suggested grocery list with a user's selected household size and meal preferences. A particularly innovative platform called LeftoverSwap matches people with leftover food to others in their area who would like to purchase cheap food and pick it up, and they offer anything from pizza to produce.
4. Hackathons - Food-centric hackathons are popping up around the globe to improve the food industry. It is a movement that is gaining traction. Food+Tech Connect held the first food hackathon, and continues to host them annually, including ones that have tackled the Farm Bill, and the meat and restaurant industries. The Future of Food Hackathon and Forum is an assembly of the leading food innovators, chefs, entrepreneurs, and designers to create solutions for the future of food. The Rural Advancement Foundation International and Farm Hack, an open source community for agriculture projects that lists local hackathons and innovations, have launched a collaborative campaign on Kickstarter for Growing Innovation, an online community to share agricultural innovations and maps of sustainable farms.
5. Access To Recipes - AllRecipes has been around for many years, and the platform is extraordinarily popular. In 2012, on its 15th anniversary, the site conducted a survey, asking users questions about their use for their recipe services. It found, of course, that our smartphones and tablets are changing the way we prepare and cook food. More than a third of respondents said they use phones to look up recipes and cooking techniques, according to the survey.

   Recipe sites have well surpassed cookbooks and magazine recipes in usage. From gluten-free to vegan to paleo, we can find guidelines for just about any type of diet or lifestyle on the internet today. With blogs, Pinterest, food-centric Twitter accounts, and Facebook groups, sharing recipes across borders has never been easier. And with video sites like YouTube, we can learn how to chop up an artichoke in a matter of four minutes.
6. Promoting Local Food- The farm-to-fork movement is strong. People want to know where their food comes from, and as industrial agriculture, GMOs, hormones, and carbon emissions become increasingly concerning, it becomes more important to know the lifecycle of food. Websites like Farmigo offer a place for people to find local harvest from farmers in their region, creating an online farmer's market community, of sorts. Farm to Table is a web service that distributes locally grown produce, grass-fed beef, and cage-free chickens to restaurants, independent grocery stores, and cafeterias. There are profiles of the farmers and the farms they tend, as well

as detailed descriptions of the food that is available for purchase. The company is based in Austin, Texas, but services like these are growing around the country.

According to: Haji M, Kerbache L, Muhammad M, Al-Ansari T. Roles of Technology in Improving Perishable Food Supply Chains. Logistics. 2020; 4(4):33. https://doi.org/10.3390/logistics4040033

Food supply chains are considered to be more complex systems than other types of supply chains. This complexity is due to the continuous changes taking place, particularly in ensuring the quality of food products throughout the entire supply chain, from growing, procurement of resources, production, and management of stock, to distribution to the final consumers. For that, food supply chain markets have become more highly developed in the use of modern technologies, and have begun to implement them in their logistical systems to satisfy their customers' needs. The main objectives of this review are to identify the different technological implementations in different phases of the food supply chain processes and point out the key factors for using technologies to improve the characteristics of the perishable food supply chain. A total number of 137 articles were analyzed in this research to achieve these review objectives. Some of the various technologies found in different phases of the food supply chain were radio frequency identification (RFID), the Internet of Things (IoT), blockchain, three-dimensional printing (3DP), autonomous vehicles, and unmanned aerial vehicles (UAVs). These technologies were found in different phases of the food supply chain and improved the efficiency of supplying perishable foods. The review identified different characteristics of the perishable food supply chain. The main finding indicated that technological implementation enhances the efficiency and sustainability of the food supply chains and helps to retain perishable food characteristics.

HEALTHCARE

Health information technology presents numerous opportunities for improving and transforming healthcare which includes; reducing human errors, improving clinical outcomes, facilitating care coordination, improving practice efficiencies, and tracking data over time.

How can technology be used in healthcare?

The use of medical technology tools **safeguards patient safety**. First, there are alerts on medication, flags and reminders, consultation and diagnosis reports, and the easier availability of patient data. Particularly, alerts can help someone adhere to specific treatments and schedules of treatment.

Most obstetrician–gynecologists are now using electronic health records. They have rapidly moved into use because of the recognition of their potential benefits and government programs that incentivize their use. The benefits of health information technology (IT) include its ability to store and retrieve data; the ability to rapidly

communicate patient information in a legible format; improved medication safety through increased legibility, which potentially decreases the risk of medication errors; and the ease of retrieval of patient information.

The potential to improve patient safety exists through the use of medication alerts, clinical flags and reminders, better tracking and reporting of consultations and diagnostic testing, clinical decision support, and the availability of complete patient data. Data gathered through the use of health IT can be used to evaluate the efficacy of therapeutic interventions and have been demonstrated to lead to improvements in the practice of medicine 1. Alerts can optimize adherence to guidelines and evidence-based care 2. Record uniformity can be designed to reduce practice variations, conduct systematic audits for quality assurance, and optimize evidenced-based care for common conditions 3.

Health IT is increasing patient engagement as consumers of health care. It allows patients access to their medical records, which helps them to feel more knowledgeable about their conditions and encourages them to actively participate in shared decision making.

Outside the patient encounter, it can improve follow-up for missed appointments, consultations, and diagnostic testing. A health care provider can search for specific cohorts of patients within a practice to monitor and improve adherence to indicated health care such as mammograms, Pap tests, or measurement of hemoglobin A1C levels.

Health IT has become an integral part of the practice of medicine. As with any new technology, health IT brings many potential benefits and as well as potential concerns. The current literature to date, reflects outcomes at single sites or institutions. National estimates are extrapolations from these single-site studies. As the implementation and use of health IT systems increase, it is important to keep patient safety and quality as a major focus.

According to: John Øvretveit, Tim Scott, Thomas G. Rundall, Stephen M. Shortell, Mats Brommels, Improving quality through effective implementation of information technology in healthcare, International Journal for Quality in Health Care, Volume 19, Issue 5, October 2007, Pages 259–266,

Health services do not have a good history of cost effective implementation IT and especially of EMRs. The potential for increasing safety and productivity of this ‘quality intervention’ is largely unrealized. The study of EMR implementation presented in this paper was carried out using the same case study method of an implementation in the USA. After reviewing previous research, the research team expected the EMR planning and implementation in this study would follow the same problematic pattern of other implementation. The findings of the research team, who were entirely independent from the hospital, were unexpected and contrary to most previously reported research: the Karolinska implementation was successful, on time and within budget. Empirical data of respondent's perception of what helped and hindered implementation show a consensus about the main ‘helping’ factors. These were the local hospital control of selection of the system, employee involvement in many different ways, leadership and support by a competent on site information technology department, and decisive and full leadership backing.

The Karolinska experience suggests that a tried and tested EMR, which is accepted by physicians can be implemented successfully in 1 year into a teaching hospital with some experience of computerization. It did not show whether such a system allowed the clinical work and process redesign, which some thought necessary and as a missed opportunity during the implementation.

Other findings about what helped and hindered were derived by comparing interviewee data to a simple implementation theory developed from a review of previous research. The findings from this revealed the importance of organizational, leadership and cultural factors, as well as a user-friendly EMR, which assists clinical work, is easily modified and which saves time and increases productivity. This theoretical model for successful implementation is based on a review of research and supported by the evidence of this study. It provides a theoretical basis for future research and a practical tool for implementing an EMR and realizing the potential of this method for improving safety and the quality of patient care.

PRODUCTIVITY

How technology improves productivity and profitability?

It allows sales teams, for instance, to access all necessary information at any given time to make right decisions regarding potential sales. It also enables consistent and high-quality customer service, ultimately increasing productivity and profitability. Easy and quick access to data saves valuable time.

Ways Technology Increases Productivity

1. Automates and Systematizes Workflows and Processes

   Many successful businesses use applications for streamlining complex workflows and processes. They have features that ease repetitive and time-consuming tasks. These include activities such as collecting and sorting information or paying bills.

   From marketing to operations, there are many business automation tools that can make things run more efficiently.

   For instance, HubSpot is a customer relationship management, sales, and marketing platform that gathers and organizes client information and daily customer interactions in one place. It allows businesses to engage with prospective customers. The app creates unique, personalized experiences for them. That can ultimately encourage them toward the next best action to take.

   Meanwhile, Rippling is an employee management software that lets HR manage employees' payroll, benefits, devices, apps, and more using a single platform.

   Turning over recurring and monotonous tasks to powerful computers increases productivity. It also reduces the chance of human error. What's more, letting technology do the heavy lifting allows you and your employees to focus on core business tasks and revenue-generating activities.

2. Keeps Lines of Communication Open

   As remote work continues to be the new normal, cloud and mobile technologies remain essential. They help ensure that distributed workforces have the appropriate resources to stay connected and productive.

   With the cloud, you can access key business applications and connect with your employees, partners, and clients in an instant.

For instance, a cloud-based solution like a Voice over Internet Protocol phone system enables users to make and receive phone calls via the internet. That is beneficial for remote work setups. It allows employees to easily reach out to colleagues and customers without the hassle of traditional phone systems.

Meanwhile, communication and collaboration platforms like Slack, G Suite, and Microsoft Teams can enable your remote teams to work together despite being apart. Similarly, video conferencing apps like Zoom and Google Meet make it easier to host interactive virtual meetings and stay productive.

A central repository for processes, such as SharePoint, allows users to securely share and manage content with colleagues inside and outside your organization. What's great is that SharePoint integrates with Microsoft Teams. It can also sync across PCs, Macs, and mobile devices, making it easier to collaborate on documents and presentations. Similarly, Confluence allows users to create, collaborate, and organize everything from quarterly planning documents to new hire blogs in a single place.

3. Enables more strategic planning and time management

   Proper time management is one way to ensure that you and your employees get the most out of your workday. Calendar and scheduling applications such as Google Calendar integrate with almost every kind of productivity app. They are also instantly accessible on any device. Simply plot your tasks and do your best to complete these within their designated timelines. Setting reminders can help keep you on track and develop good habits.

   You can also use time tracking tools like Time Doctor to keep tabs on your remote employees' progress and pace. Doing so allows them to be more conscious of how they spend their day and how much productive time they put in on a regular basis. That can help them see which tasks they need to put less or more effort into and eventually improve their efficiency.

4. Simplifies setting and meeting goals

   In reading the success stories of prominent personalities, you'll notice a striking similarity: most had a vision and a strong desire to accomplish it. Many also had organized and detailed plans of action for achieving certain goals. There is power in goal setting, and technology can help you create and follow your own blueprint for success.

   Common smartphone features, like a to-do list and reminder apps, allow you to record goals and set daily weekly, and monthly reminders. That can help you set priorities and manage schedules. But there are also goal

tracking apps like Strides. The app can help you stay focused on your goals and provide you with charts and reminders to ensure you achieve them.

5. Allows for better concentration

   Since technology can take over a lot of other tasks, your team can concentrate more and have longer periods of uninterrupted work. That primarily enables them to become more productive. So it's vital to choose the right pieces of technology to fit your existing business processes, workflows, and culture. That might mean missing out on the latest productivity tools and applications to settle for more established technology.

6. Facilitates continuous education

   Investing in your staff's development is essential to stimulating the drive, creativity, and forward-thinking abilities necessary to stay ahead of the curve. A learning management system can empower employees to further their knowledge, skills, and talents. It can provide them with a repository of training materials and certifications. Having these resources at their disposal enables them to find novel solutions and innovations that will bring your business and customers the most value.

According to Penfold, Julie. Primary Health Care (2014+); London Vol. 24, Iss. 4, (Apr 2014): 8. DOI:10.7748/phc2014.04.24.4.8.s9

The new mobile workflow management system (see panel) has reduced the time healthcare professionals spend on administration and travel, enabling them to have more contact time with patients.

Benefits of the software:

Increased patient contact time, as staff can go directly to people's homes rather than having to come to the office first.

Nurses can update information and records while with the patient, without having to return to base.

More manageable workloads, as mobile working saves time.

Work satisfaction is higher and nurses experience less stress.

Higher staff and patient engagement.

Records are streamlined, as the system is unified across Bristol Community Health.

Before the introduction of TotalMobile, which can be used on laptops, tablets and smartphones, the community and district nursing staff recorded everything on paper.

The patient information system RiO could only be accessed via a desktop computer at the office, which meant staff had to return to base to input patient data and update records.

Nurses also had to call at GP practices to enter data in their respective systems. This was time consuming and left staff feeling tired and frustrated.

'The previous way of working became a recipe for unhappy staff as they often had to spend hours at the end of the day inputting data because they were too busy to do it sooner,' says BCH chief executive Julia Clarke.

'If there was no time for a nurse or clinician to return to base, the information had to be entered in RiO and the GP practice systems the following day. This raised questions about whether staff had remembered all the information from the previous day and if it had all been recorded in their paper notes. Systems were not always fully up to date on the day and there was a risk of information.