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Automation in Daily Life & It's Impact on Individuals & Society

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Abstract: ***Automation, application of machines to errands once performed by individuals or, increasingly, to errands that may somewhat not much possible. Even, the term mechanization is commonly adapted to seek advice from the easy replacement of human labor by machines, automation generally points towards the integration of machines into a self-governing system. Automation has altered those areas during which it's been introduced, and there's barely a facet of recent life that has been unaffected by it. This paper describes how automation takes place in our day-to-day life in terms of communication and transportation and what impact it leaves on individuals which may lead to unemployment and how it causes problems in productivity.***

Keywords: Automation, Communication, Transportation, Impact, Individuals, Society

1. Objectives

- The main aim is to educate people about automation in our daily lives.
- How automation eases human work specifically in communication and transportation.
- Automation roles in production and it's ultimate impacts on society.

2. Introduction

a) What is Automation?

Automation is nothing but a way of operating or monitoring a process by automatic means. Electronic devices, machines, and robots are employed to automate tasks that are supposed to be completed by individuals. Developments in software, machine learning, and robotics are swiftly making it possible for companies to achieve more productivity with a minimal workforce.

Figure 1: Representation of Automation

b) Bit of History

The term automation was invented in the automobile industry around 1946 to depict the accelerated use of automatic devices and controls in mechanized manufacturing lines. The derivation of the word is credited to Engineering Manager D. S. Harder, Ford Motor Company.

The term is used broadly in a manufacturing context, but it is also applied outside manufacturing in connection with a diversity of systems in which there is a substantial change of mechanical, electrical, or high-tech action for humanoid effort and intelligence.

Different types of Automation:

Industrial Automation:

There are numerous uses for robots and further automated machines in industrial surroundings. 3D printing is an example, as are self-governing vehicles for logistics. But also, precise machines are used in perilous environments including 'cobots' which work alongside humans, supporting with heavy lifting and other potentially dangerous tasks. Software automation also plays an imminent part in the working lives of individuals and there are disparities worth considering**.**

Figure 2: Industrial Automation

Business Process Automation (BPA):

This encompasses an organization enchanting all its basic non-manufacturing processes and looking for ways to improve proficiency by automatizing them. Several software tools are used across areas like HR, accounts, and contract management – fundamentally creating a back-office function but without people**.**

Figure 3: Business Process Automation

Robotic Process Automation (RPA):
Disparate to (mechanical) robotics, RPA is the term given to advanced level automation, where software is used in firm circumstances to increase process performance and perform intricate tasks. Moderately than being a piece of a BPA solution, it fulfills a primary function in one crucial area such as client order dispensation. A limited-edition investment, rather than business refurbishment**.**

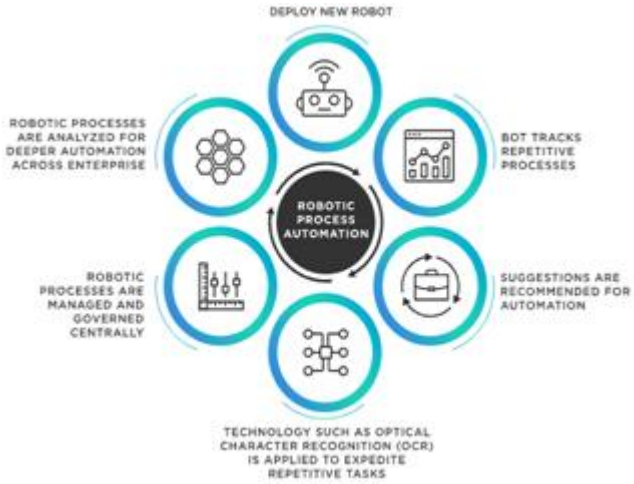


Figure 4: Robotic Process Automation

Intelligent Process Automation (IPA):
Although RPA is adherent to pre-set rules, IPA software uses Artificial intelligence to acquire how to mimic human-computer communications and transport intelligent outcomes. Another factor of IPA is machine learning, a type of AI that empowers computers to adapt, change, and even test different tactics based on data reclamation**.**

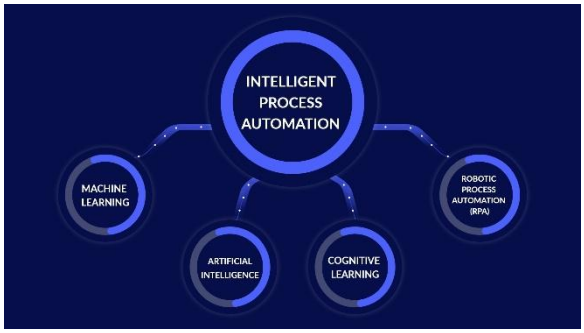


Figure 5: Intelligent Process Automation

c) Automation Application Areas
One of the most important areas of application for automation technology is production. 3 sorts of automation in manufacture can be eminent:

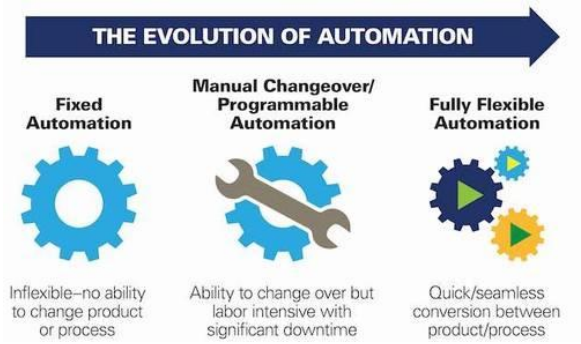


Figure 6: Evolution of Automation

a) *Fixed automation:* Fixed automation, also recognized as "hard automation," states an automated production capacity in which the sequence of processing procedures is fixed by the scheme of the device. An example includes machine allocation lines found in the automotive industry, automatic assembly machines, and certain chemical processes.
b) *Programmable Automation:* Programmable automation is a form of mechanization for manufacturing products in sets. The products are produced in batches ranging from a few tens to several thousand pieces at a time. Programmable automation product prices are generally lower than fixed prices automation because the paraphernalia are geared towards product exchange rather than product specialization. The best example would be Industrial robots.
c) *Flexible Automation:* Flexible automation is nothing but a leeway of programmable automation. The downside to programmable automation is the time it takes to reprogram and modify the build sheets for each new series of products. In addition to the industrial applications of automation technology, there have been momentous accomplishments in parallel corridors like communications, transportation, amenity industries, and used products industry. In this paper, we are going to focus on communication and transportation.

d) Communication:
The beauty of mechanized messaging is that the communications are prearranged and set up once. Messages are automatically directed to clients when an event or action is documented, considering their communication preferences and comforts. Automation of communication increases broad social, economic, and political concerns.

Figure 7: Automated Communication Representation

The financial costs of automated communication are already disturbing people who work in areas that rely heavily on

communication, viz psychotherapists, personal assistants, college advisers, telemarketers, life coaches, bank tellers, and even professors.

Automation puts minor businesses and tycoons in an even playing arena with large establishments. If you don't always have the possessions or time to speak to your clients directly, you may profit from automated communications. Marketing automation lifts production by 20%.

1) Social Media Communication Automation:
There are numerous ways to automate communications. For instance, there are some social media management tools, like Happy Fox, which act as a kind of social media helpdesk. Using such a tool permits you to automatically filter conversations and deliver them to the right person. Automation can offer useful, quick retorts to client queries, issues, or complaints. After all, clients say the most significant attribute of client experience is quick response times (75%).

2) Email Automation Communication:
Email automation is also an enormous time-saver. Tools like Mail chimp or Drip can aid you to automate the following:

- Sending a sequence of onboarding emails
- Sending a reminder
- Chasing up an unrestricted cart.
- Re-engaging subscribers who must open an email in a while.
- Distribution of special offers on occasions such as birthdays

Use your preferred tool to set up behavioral triggers for precise emails.

For instance, let's say you direct a webinar invitation. Those who sign up will get put into one email categorization with event reminders and so on. Those who don't sign up enter a different categorization with more fostering to encourage a sign-up or they obtain a different, more pertinent offer.

e) Transportation
Automation has been applied in innumerable ways in the transportation industry. Transport automation considers the series of technologies and control systems that can be instigated for transportation means like sedans and trucks, but also at terminals such as ports, airports, and delivery centers. Although automobile automation has got a lot of attention, the automation of other means (particularly trucks) and terminals can be far-off reaching in significance as well. The level of vehicle automation has been addressed to a categorization ranging from level 0 (no automation) to level 5 (full automation).This provision may also apply to terminals and distribution centers.

1) Level 0 (no automation):Cars and equipment are operated manually, which means standard automatic operations. Although it is possible to program a vehicle or equipment (ex. static cruise control), cannot adapt to changing conditions without assistance.

Figure 8: Cruise Control Switch

2) Level 1 (basic):A form of adaptive driving support is provided for automobiles, mostly the capability to alter speed beneath adaptive cruise control (if the swiftness of other vehicles changes). However, the driver must always be in control. A similar thing can be applied to terminals and delivery centers. Like, a crane could automatically do a movement from the point of pickup and drop off, but the operator would be responsible for the pickup or drop off equipment operations.

Figure 9: Representation of Crane- Pickup and drop-off

3) Level 2 (partial): Beneath this level of automation, the car can take partial control, i.e. steering, acceleration and deceleration under well-defined circumstances (a highway).This indicates the current level of automation available for commercial cars with the operator ready to take control of the car at any time. For terminals, this level of automation mostly relates to the yard and warehousing managing systems that automatically allots cargo (or items) to a storage slot and the equipment to handle it.

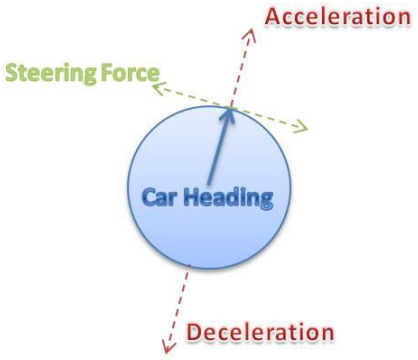


Figure 10: Driving tasks (Steering, Acceleration & Deceleration)

4) Level 3 (conditional): This level of automation is getting close to truly autonomous vehicles since most of the driving is automated and the operator is ready to take control beneath request and more compound conditions. The vehicle actively monitors the environment with numerous sensors. This form of automation is subject to perils meanwhile the operator has the illusion that the vehicle is self-governing while it is so only beneath specific circumstances. For terminals and delivery centers, conditional automation is often the standard since the equipment (like cranes and horizontal movements) operates under well-defined conditions that are less likely to be interrupted by unpredicted events, but operators must be ready to handle exemptions. This form of automation also includes automated gates and access to amenities where automobiles and users can enter and exit if they meet defined criteria (e.g. electronic bill of lading).

Figure 11: Automated Gate

5) Level 4 (high):Signifies true self-driving automobiles able to accomplish all the required steering without intervention. This would require continued and vigorous monitoring of the environment and the ability to adapt to change. However, there is the possibility of manually operating the vehicle. Fully automated terminals and delivery centers can assimilate different storage and retrieval systems so that communications between different automated factors become functional. Such systems should also be capable of mechanically loading and unloading vehicles.

Figure 12: Automated material handling system

6) Level 5 (full):A fully autonomous automobile able to function in all possible environments deprived of intervention, with the automobile remotely controllable. Users simply provide the source and destination data. On the terminal side, this would signify a fully autonomous terminal able to vigorously respond to demand from users to access consignment that will be loaded or unload from transportations such as ships, trains, or trucks. These conveyances could be mechanized as well.

Figure 13: Terminal Automation

f) Impact on the Individuals and Society:

As mechanization developments, technological innovations could transfer some section of the workforce, so it's likely there may be provisionally higher unemployment. Presently, technology is displacing workers whose jobs consist of tedious, repeatable tasks, like accounting, manufacturing, and food services.

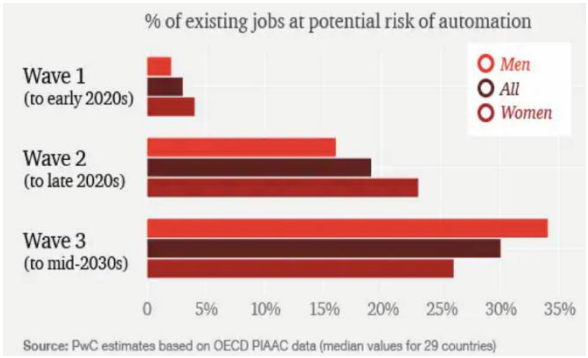
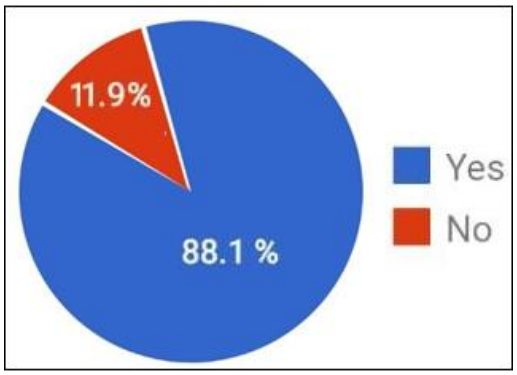


Figure 14: Existing jobs at risk due to automation

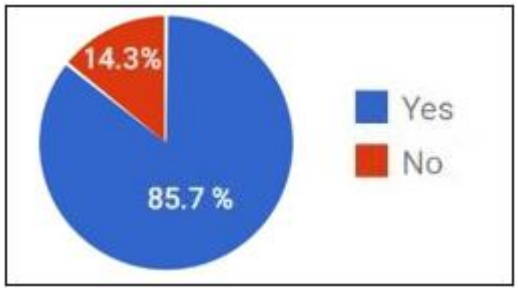
People performing these sorts of jobs aren't the only people who may lose work because of automation. Individuals who use mainframes at work may be at even more risk of losing their jobs to mechanization. As of now, software programs become more effective, they may replace the humans formerly tasked with operating them.

According to research, with every robot added for every 1,000 workers, earnings decrease by 0.42% and the employment/population ratio drops by 0.2% of the points to date means the loss of around 400,000 jobs. The influence is more substantial within the areas where robots are arranged: adding one more robot in a commuting zone (geographic zones used for financial analysis) decrease employment by 6 workers in that zone.

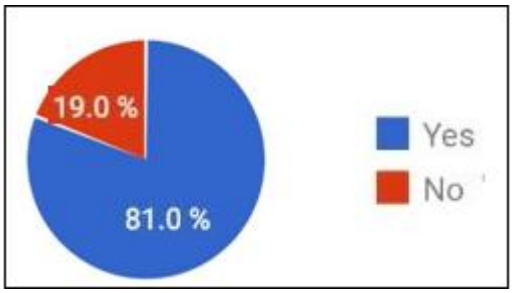
As per survey on Automation:



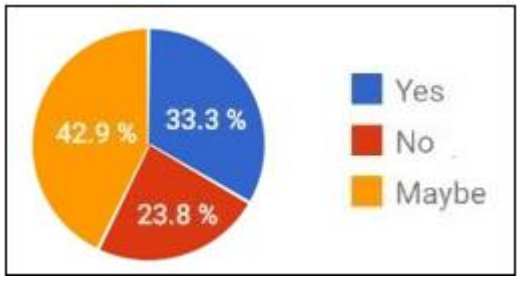
***When asked people about how much they know about Automation*:** 88.1% people know and 11.9% people don't know about Automation.



When asked people whether Automation is helpful in our daily life : 85.7% people said yes and 14.3% people said no.



When asked people whether they use automated devices in day-to-day life : 81% people said yes 19% people said no.



When asked people whether increase in automation will lead to increase in unemployment: 33.3% people said yes, 23.8% people said no and 42.9% people said maybe.

3. Conclusion

According to the study, the cumulative occurrence of automation in our lives won't be all doom and gloom. They say it might be a good thing.

History shows us that when unemployment arises because of high-tech developments, laid-off laborers seek retraining. Commercial leaders then generate provisional prospects to re-absorb citizens back into the commercial system. The study also says that advanced machinery could create more wealth and well jobs in the end by eradicating unpleasant routine work and cumulative overall productivity.

As automatic technology continues its fast-paced development, it's difficult to forecast what new jobs will exist for individuals in the approaching years and eras. Automation will fetch new opportunities and challenges, but despite the high-tech revolution, individuals will still be required in the economy of the future.

Mechanical technology is predictable to keep increasing, with an aggressive state predicting that robots will expand universally by 2025. This would mean 5.25 more robots per thousand employees.

References

[1] https://www.britannica.com/technology/automation/Computer-integrated-manufacturing#ref24857
[2] https://www.google.co.in/search?q=automation+in+communication&sxsrf=AOaemvKNQNw37V7P96p867IY2GJRi2i7YQ%3A1633792293131&source=hp&ei=JbFhYda2BY7B5OUP08CM4A0&iflsig=ALs-wAMAAAAAYWG_NZXcVAd62w2lYv0Q2kxQfpeFlAU2&oq=automation+in+communication&gs_lcp=Cgdnd3Mtd2l6EAMYADIFCAAQgAQyBggAEBYQHjIGCAAQFhAeMgYIABAWEB4yBggAEBYQHjIGCAAQFhAeMgYIABAWEB4yBggAEBYQHjIGCAAQFhAeMggIABAWEAoQHjoECCMQJzoFCAAQkQI6EQguEIAEELEDEIMBEMcBENEDOgsIABCABBCxAxCDATоICAAQgAQQsQM6BAgAEEM6CgguEMcBENEDEM6BAuEEM6BwgAELEDEEM6CAgAELEDEJECOhMILhCABBCHAhCxAxDHARDRAxAUOg0IABCABBCHAhCxAxAUOgsILhCABBDHARCjAjoICAAQgAQQyQM6BQguEIAEUOsHWN42YNVLaABwAHgCgAHgC4gB6ESSAREwLjQuNC4yLjIuNS4wLjEuMZgBAKABAQ&sclient=gws-wiz
[3] https://www.simplycast.com/blog/top-benefits-of-an-automated-communication-system/#post
[4] https://neilpatel.com/blog/technology-communication/
[5] https://link.springer.com/chapter/10.1007/978-3-540-78831-7_13
[6] https://edu.gcfglobal.org/en/thenow/how-will-automation-impact-our-lives/1/
[7] https://transportgeography.org/contents/conclusion/future-transportation-systems/forms-of-transport-automation/
[8] https://www.pnas.org/content/116/16/7684
[9] https://www.digitalengineering247.com/article/the-automation-of-transportation/
[10] https://economics.mit.edu/files/19696
[11] https://www.forbes.com/sites/forbescoachescouncil/2021/03/04/how-automation-will-impact-future-job-markets-10-predictions/?sh=6a1611172ed7
[12] https://youtu.be/02q4NtPbve8
[13] https://www.weforum.org/agenda/2018/02/what-impact-will-automation-have-on-society-four-scenarios/

[14] https://www.google.co.in/search?q=happyfox+chat&sxsrf=AOaemvJ182E3NRH0B5WSN3nG4gLakQS3Dw:1634138940388&source=lnms&tbm=isch&sa=X&ved=2ahUKEwjtnLj42cfzAhXM_XMBHbDTDq8Q_AUoAnoECAEQBA&biw=1366&bih=657&dpr=1#imgrc=MwUsoPerLh3HEM
[15] https://www.controleng.com/articles/the-drivers-of-flexible-automation/
[16] https://www.weforum.org/agenda/2021/03/universal-automation-is-the-innovation-gateway-the-industry-sector-needs/
[17] https://docsumo.com/blog/what-is-intelligent-automation
[18] https://www.tibco.com/reference-center/what-is-robotic-process-automationhttps://www.assignmentpoint.com/business/management/business-process-automation.html
[19] https://www.canplastics.com/features/will-covid-19-create-a-boom-in-factory-automation/
[20] https://www.weforum.org/agenda/2020/09/short-history-jobs-automation/
[21] https://www.systema.com/automated-material-handling-systems
[22] https://www.icontainers.com/us/2018/10/09/the-future-of-automation-at-terminals-and-ports/
[23] https://mydecorative.com/the-benefit-of-driveway-gate-openers/
[24] https://courses.cs.washington.edu/courses/cse557/08wi/projects/final/artifacts/rkamin-yang/
[25] https://www.worldhighways.com/wh6/products/praise-high-production-crawler-crane
[26] https://gomechanic.in/blog/the-history-of-cruise-control/
[27] https://www.insidenews.co.uk/automated-communication/