

14.2: Collaborative

14.2.1 Collaborators as free content-providers

Internet usage has continued to give rise to the collaborative effort among consumers and businesses worldwide. Consumers have gained influence by sharing reviews of products and services. It is common for people to look up other people's reviews before buying a product, visiting restaurants via sites such as [Yelp](#), instead of believing the information from vendors directly. Businesses have leveraged consumers' collaboration to contribute to the content of a product. For example, the smartphone app [Waze](#) is a community-based tool that keeps track of the route you are traveling and how fast you are making your way to your destination. In return for providing your data, you can benefit from the data being sent from all other app users. Waze will route you around traffic and accidents based upon real-time reports from other users. These businesses rely on users spending their free time to write free reviews to be shared with other people in these examples. In essence, they monetize people's time and content.

14.2.2 Shared economy collaborators

New types of companies such as [Airbnb](#) and [Uber](#) incorporate consumers into their business model and share a fraction of the revenues. These companies monetize everyday person's owned assets. For example, [Airbnb](#) uses its technology platform to rent out rooms, houses to people by people who actually own these assets. [Uber](#) popularized the gig economy by having people use their own cars as drivers. This trend is expected to continue and expand in other industries such as advertising.

14.2.3 Telecommunication

14.2.3.1 Personal communication

Video communication technologies such as Voice-over-IP (VoIP) have given consumers a means to communicate with each other for free instead of paying for expensive traditional phone lines through free services such as [Microsoft Skype](#) and [\[1\]WhatsApp](#). The combined use of smartphones, VoIP, more powerful servers, among others, have made landlines outdated and expensive. By 2019, the number of landlines had decreased to less than 40% from 90% in 2004 ([Statista.com, 2019](#).)

14.2.3.2 Entertainment

The above trend continues to affect other industries, such as the consumers' exodus of cable services or pay-TV to streaming services, a phenomenon called 'cutting the cord' due to the rise of companies such as Netflix and Hulu. By 2022, it is estimated that the number of households not paying for TV services in North America will grow to around 55.1 million (Statista.com, 2019). The convergence of TV, computers, and entertainment will continue as technologies become easier to use and the infrastructure such as 5G networks, to deliver data becomes faster.

14.2.4 Virtual environment

14.2.4.1 Tele-work

Telecommuting has been a trend that ebbs and flows as companies experiment with technologies to allow their workers to work from home. However, with the Covid-19 pandemic, telecommuting became essential as people worldwide worked from home to comply with national or regional stay-at-home orders. The debate over the merit of telework has been set aside, and its adoption spread to many industries that have eschewed this use of technology. For example, therapy counseling, medical visits with primary care providers can now be done remotely. The Post-pandemic work environment may not necessarily be the same as it was. Now, organizations have gained valuable insights about having most, if not all, of their entire workforce work from home. In one year, Zoom, the name of a relatively unknown company providing video communications, became a household word, gaining 37% in usage rate, with Microsoft Teams trailing at 19%, Skype at 17%, Google Hangouts at 9%, and slack at 7% (Statista, 2020)

14.2.4.2 Immersion - virtual reality

Tele-work allows us to see other people while we remain in our physical world. Virtual reality (VR) gives us a perception of being physically in another world. Research in building VR has been going on since the 1990s or even earlier. One example is CAVE2, also known as the Next-Generation CAVE (NG-CAVE), a research project funded by the National Science Foundation in 1992 to allow researchers to 'walk around in a human brain or fly on Mars, etc.'. Please watch [this video on YouTube](#) or search for the phrase with the keyword 'CAVE2' for more details.

Technologies are not yet mature enough to give us a 100% immersive experience. They may be good enough for some products recently on a smaller scale in gaming or training. For example, if we use a VR goggle to play a game, we become a character. The same technology can be used in training for police officers.



Figure 14.2.1: A woman using the Manus VR glove development kit in 2016. (CC BY-SA 4.0; [Manus VR](#) via [Wikipedia](#))

14.2.5 3D Printing

3D printing completely changes our current thinking of what a printer is or the notion of printing. We typically use printers to print reports, letters, or pictures on physical papers. A 3-D printer allows you to print virtually any 3-D object based on a model of that object designed on a computer. 3-D printers work by creating layer upon layer of the model using malleable materials, such as different types of glass, metals, wax, or even food ingredients

3-D printing is quite useful for prototyping the designs of products to determine their feasibility and marketability. 3-D printing has also been used to create working [prosthetic legs](#) or [handguns](#). [Icon can print a 500sqft home](#) in 48 hours for \$10,000. [NASA wants to print pizzas for astronauts](#), and we can now [print cakes too](#). In 2020, [The US Air Force produces the first 3D-printed metal part for aircraft engines](#).

This technology can potentially affect the global value chain to develop products, and entrepreneurs can build prototypes in their garage or provide solutions to some social challenges. For example, producing a prototype of a 3D object for research and engineering can now be done in-house using a 3D printer which speeds up the development time. Tiny homes can be provided at a fraction of a cost of a traditional home.

With the rising need from consumers for more personalization (as discussed earlier), this technology may help businesses deliver on this need through shoes, clothing, and even 3D printed cars.

14.2.6 References

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