

Introduction

A cybersecurity career that I've had an interest in is being a software developer. As an advanced career, software developers play a large part in the cybersecurity workforce by coding, designing, and analyzing the applications used in daily life. I've been interested in this career because I am fascinated with programming and coding. I also see the career as an outlet for solving issues with computers.

Social Science Methods and Theories

Software development applies to many principles and aspects of social science theory. For example, methods such as case studies and experiments that are used within software development research, stem from social science experimentation. These methods play a part in examining different levels of people and groups for specific projects that need that data (Lorey et al., 2022). Furthermore, commonly used theories in software development research are the technology acceptance model, coordination theory, and diffusion of innovations. These theories influence how new technologies are made and how they can be used by other people at the same time.

First, the technology acceptance model is a theory that explains that new forms of technology are used based on their usefulness and other external factors. The theory is used more for the human factors aspect of software development projects compared to functionality. Next, coordination theory describes how people working at different times and paces can be coordinated to focus on a single project. This applies to designing technologies and systems that are made for coordinating groups. Finally, diffusion of innovations is a theory explaining how ideas can spread throughout social systems. This plays into not how ideas are shared in certain settings but how projects start in software development (Lorey et al., 2022).

Social Science Concepts

Software development relates to human factors, symbolic interaction theory, structural functionalism, and economics. First, software development relates to human factors through the programs that people will use. Applications such as LinkedIn, Twitter, and Facebook account for human interaction based on the design of user interfaces and usability of the application itself (Begel et al., 2010). Next, symbolic interaction theory relates to software development by its perspective being used within open-source software communities. According to DiTullio and Devan (n/d), symbolic interaction theory is used in these community members by having knowledge-seeking and knowledge-providing projects that lead to further interest in open-source software communities and software development as a whole. Next, structural functionalism relates to software development through smart cities and how the citizens are intertwined with the functioning of the city. With smart cities, the technology that they're intertwined with is programmed by software developers, hence making them a critical asset toward smart cities remaining functional (Reuter, 2019). Finally, economics is a section of software development due to the financial potential of open-source software. For example, in a study examining the market value of open-source software, found that as the software became higher quality the market value increased (August et al., 2018).

Marginalized Group Challenges

Marginalized groups are disadvantaged by being excluded from social groups, having impairments or disabilities, and having economic barriers. While these barriers exist, software development and its branches can counteract these issues. Information and communication technologies (ICTs) are resources that allow access to cyberspace and smart cities are technologically advanced areas that are interconnected with software and smart devices.

Software development is involved with programming ICTs and the software of smart cities and can benefit several communities (Reuter, 2019).

According to Reuter (2019), ICTs led to the connection of 50 billion devices by 2020. This level of connection allows people from all communities to connect, creating a more inclusive environment. Furthermore, ICTs have also provided support for impaired and disabled groups in the form of captioning, accessible emergency services, telehealth, and augmented reality programs. These technologies can support the blind, the physically or cognitively disabled, and people dealing with mental health issues.

However, there are parts of software development that could improve when addressing these issues. Smart cities need to improve the economic factors of marginalized groups. For example, research shows that more than 50 percent of all disabled people live within cities, yet discrimination for housing, education, and employment was a common occurrence (Reuter, 2019). Despite this, if smart cities can improve these challenges of marginalized groups, then a more inclusive environment can be achieved for software development as a whole.

Societal Benefits

Software development has been critical in benefiting not only business but daily life as well. This career helps to benefit society through open-source software and social media platforms.

Open-source software (OSS) is publicly available source code that can be used for any kind of purpose. According to August et al. (2018), when businesses were less restrictive on their OSS, it generated more profits for the original business and other organizations that used it. The development of OSS creates another economic tool for businesses and improves the ability of the software due to its popularity.

Social media is communications and collaboration technology that has been critical in creating connections between communities and organizations. For example, forms of social media such as blogs, social networking platforms, and community question-and-answer (Q&A) sites are mediums that can support several aspects of software development. Blogs can be used for marketing and as a feedback tool for business. Social networking platforms can create environments for communities such as open-source software development. Q&A sites can provide specific answers when it comes to the design and technical aspects of software development. Overall, both OSS and social media are two beneficial parts of software development that have helped businesses, communities, and average citizens (Begel et al., 2010).

Conclusion

In conclusion, software development is an incredible career that interests me in the future. Experimentation and technological theories play large factors in designing and developing programs. The concepts such as human factors, structural functionalism, and economics still relate to the different aspects of software development in important ways that affect the field. Software development also manages to tackle some of the many challenges faced by marginalized and disabled groups. Open-source software and social media platforms are two products of software development that benefit not only organizations but also everyday people. This career plays a critical role in many aspects of business, society, and communities and I'm excited to be a part of that,

References

August, T., Shin, H., & Tunca, T. I. (2018). Generating value through open source: Software service market regulation and licensing policy. *Information Systems Research*, 29(1), 186-205. <https://doi.org/10.1287/isre.2017.0726>

Begel, A., DeLine, R., & Zimmermann, T. (2010, November). Social media for software engineering. In *Proceedings of the FSE/SDP workshop on Future of software engineering research* (pp. 33-38).

https://dl.acm.org/doi/abs/10.1145/1882362.1882370?casa_token=FCGpqKZ5xDoAAA AA:q6eGRwyQyndE8UhdBLSp5Kgp5y6Pnt7ZmayGI79lhJls3JYwP7J4JRcWf_46wBee XfKc5zq-XN6Z4w

DiTullio, D., & Devan, J. Socialization in Open Source Software Communities: A Symbolic Interactionist Perspective.

https://d1wqtxts1xzle7.cloudfront.net/34594588/OSS_socialization_CouchAward_Jijesh_Dany-libre.pdf?1409579740=&response-content-disposition=inline%3B+filename%3DSocialization_in_Open_Source_Software_Co.pdf&Expires=1681616824&Signature=GqfnqKYqMa~XX~SxiJeP4mB4t5Ad7ucHkholBLUm7i3jDlyVeP3MuMj2EF~aYvGANyo256QBWaf3lCBMAlkKENSPIcIrH~b50G4DgMggsVBAwhgQzVRRiLwJr0C~8bi3DMfyWE5uYOqbf6nu6xdAGcvP49teJAA9HzCgVRx~k~e70qUyX1TIh7c8yyCVZJEa75j-S9RUZIGAdlNR9tlOWhyDLvLJuasrq7QG4-8tcKxWr-rKKHVYMLbcShG8~qcqDpvy7Nb0VMn5SD1qKUtGvQBRxYTV713y1~MBzY1Fywq2GceBb~l7OFqQwNSgfKSWgery3sPAs~klHBPMbnQmCg_&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA

Kempin Reuter, T. (2019). Human rights and the city: Including marginalized communities in urban development and smart cities. *Journal of Human Rights*, 18(4), 382-402.

<https://doi.org/10.1080/14754835.2019.1629887>

Lorey, T., Ralph, P., & Felderer, M. (2022, May). Social science theories in software engineering research. In *Proceedings of the 44th International Conference on Software*

Engineering (pp. 1994-2005). <https://doi.org/10.48550/arXiv.2202.07519>