

SocioTechnical Systems

Socio technical systems is an relatively new area which takes a more holistic approach to the development of engineering projects that involve that interaction between people and technology.

But lets start by take an example of how our traditional approach to the development of technology and social organizations works.

Take Bob and Alice, they are both web developers and they both work on the same website

But Bob is a back end web developers, he eats data bases for breakfast and spends his days crunching code.

Whilst Alice is a front end web designer, she makes words sing and graphics come alive in simple and user-friendly interfaces that people love.

Every few months the site needs updating and Bob works hard behind the scenes coding away, he then hands the project over for Alice to work her magic on.

This works fine initially but as the site grows with more employees being taken on things become a little less straight forward.

We soon have multiple people working on increasingly specialized areas of the site with developers and designers often needing to interact and collaborate but finding themselves stuck in their separate departments.

Bob and Alice's site now requires a more holistic and Non-linear approach to overcome this stumbling block as it has now become what we can call a complex socio technical system. But what do we mean by that?

Firstly it is complex in that it has multiple elements such as lines of code, databases, graphics and so on, with all of these different things needing to interact and being dependent on each others functioning.

And secondly it is socio-technical as a web site represents an interaction between the technical domains of computer software and the human interaction. For the site to function fully we need to design both areas to work together.

When we look around us we can begin to see socio technical systems every where. Lets take another example,

This is a station for a subway in Hong Kong

It represents a highly integrated set of diverse elements, from the residential area to the commercial center to and transport hub it was engineered and constructed by a single company.

The designers of this system needed to think not only about how the physical technologies would interact and work together within a confined space but also about how the residence and commuter might wish to use the system for multiple different functions.

The web site and the subway station are examples of systems on the small to media scales. As we enter the 21st century many of the challenges we face involve macro scale socio technical systems.

Such as growing demographics and urbanization.

With urban infrastructure companies now offering solutions that integrate power grids, water supply, transportation and other utilities that must interface with thousands of people on a daily basis and have a strong influence on the social fabric.

Or with respect to the environment

Where nations must balance social needs, technological requirements and environmental considerations to manage and grow efficient sustainable economies.

We can think about socio technical systems then, as an approach to overcoming the problems of optimizing either the social or technical side to a project in isolation and a more holistic method for developing synergistic relations between both areas that create optimal solutions for the system as a whole.