

## Exercise: Design Techniques & Processes

ACME Water managers rely on 3rd party contractors to support their SCADA infrastructure, but worried about disgruntled insiders wishing to cause harm.

Conduct user research on instrumentation engineers and create a persona (Victor) that characterises archetypical behaviour of such engineers. You should also summarise their security and trust expectations.

### Tasks

1. Elicit factoids from the data sources below.....

Source	URL
Meet the SCADA engineer who stops your bag getting lost at the airport	<a href="https://bit.ly/34bys10">https://bit.ly/34bys10</a>
How to become a SCADA Technician	<a href="https://bit.ly/34aWTLX">https://bit.ly/34aWTLX</a>
Day in the Life of a Controls Engineer	<a href="https://bit.ly/2Pr58An">https://bit.ly/2Pr58An</a>
A day in the life of a process controls engineer? (reddit thread)	<a href="https://bit.ly/2Zx8t4B">https://bit.ly/2Zx8t4B</a>
Day in the Life of a Instrument Technician	<a href="https://bit.ly/2MLxRgW">https://bit.ly/2MLxRgW</a>
A day in the life of an Instrumentation and Controls Engineer	<a href="https://bit.ly/2MLIXUn">https://bit.ly/2MLIXUn</a>
A Day in the Life of an Instrument and Electrical Technician	<a href="https://bit.ly/2zyfXpy">https://bit.ly/2zyfXpy</a>
How is the typical day of an Instrumentation Engineer ?	<a href="https://bit.ly/2ZE8uDP">https://bit.ly/2ZE8uDP</a>
Day in the Life: Controls Engineer (reddit thread)	<a href="https://bit.ly/2ZFZLNk">https://bit.ly/2ZFZLNk</a>

*Here is a summary of the number of factoids that could be elicited from each source.*

Factoids	Factoids	Comments
Meet the SCADA engineer who stops your bag getting lost at the airport	5	Provides factoids about what an engineer does, motivations, and some insight into educational qualifications.
How to become a SCADA Technician	5	Discusses what an engineer does and talks about the need for flexibility and working at short notice. This source also provides the first hint that there may be some responsibility for security and the correct running of systems.
Day in the Life of a Controls Engineer	15	Provides insight into skills, but along with motivations (enjoys big picture), attitudes (always learning, flexibility needed), and aptitudes (pick up skills quickly).

Factoids	Factoids	Comments
A day in the life of a process controls engineer? (reddit thread)	10	A pretty candid data source! Provides insight into aspects of task that could give rise to errors (lots of travelling, long days, short notice work), activities (checks automation, responds to alarms). It also considers how the experience of engineers can vary.
Day in the Life of a Instrument Technician	16	Considers the education background of technicians, and some of difficulties (repetitive work, diagnosis hard) and values in workplace (communication, trust in others, needs to work to same way). It also confirms the idea that diversity and flexibility valued about all else.
A day in the life of an Instrumentation and Controls Engineer	17	Although written in a motivational style, this source provides quite a lot of attitude/motivation data, e.g. compliance as a driver, value of good documentation, troubleshooting as an aptitude, and occasional hostility of end-users.
A Day in the Life of an Instrument and Electrical Technician	11	Provides insight into typical tasks, but also some motivational info, e.g. importance of safety and following procedures. There are also hints to activities with security implications, e.g. installing security camera, doing design on the fly when fixing problems, system integration issues with legacy systems.
How is the typical day of an Instrumentation Engineer ?	4	Although short on text, there are still some interesting points around activities, e.g. participates with others, meets with clients each day, responsible for checking quality.
Day in the Life: Controls Engineer (reddit thread)	11	Another candid source of attitudinal data, with a specific emphasis on managing customer expectations.

*A few general tips when you are coming up with factoids:*

- Think about work done, aptitudes, attitudes, motivations and skills as you forage for factoids.
- There is a fine line between being too inclusive and too exclusive. You probably don't care too much about personal interests, but if you overthink the implications while coding a single phrase you will get fewer, more subjective codes.
- Make notes/memo as you go along. Together with the coding process, doing this will help you spot themes in the data when affinity diagramming

2. Affinity diagram the factoids collected.

3. Create persona characteristics from each group of factoids.

See the affinity diagram here: <https://trello.com/b/Uyk6TPnO/victorsample>

4. Draft a persona description (Victor) of an instrument engineer that incorporates these characteristics.

*See the Victor.cairis model.*

5. Summarise Victor's security and trust expectations.

*Based on Victor persona in Victor.cairis, these seem to be:*

- *Relies on work procedures for both himself and his team. Procedures associated with the installation and configuration of hardware or software controls are likely be welcomed.*
- *Given the amount of work Victor has to do out of hours, when tired, when dealing with demanding customers etc, any workload addition security adds will add a disproportionate workload cost.*
- *Because Victor cares about compliance then Victor could be receptive to security changes that improve quality of work.*