GÖTEBORGS UNIVERSITET

STUDENT

0040-YYE

TENTAMEN

TIA315 Technology

Kurskod	TIA315
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HT25: Welcome to examination!

This examination consists of open questions, sometimes referred to as 'essay questions'. It includes ***7 questions***, each rewarded with a maximum of 3 points. The examination is limited to ***2 hours.*** To pass it you need ***13 points*** (60%)

The grading will focus on the overall capability to explain and apply ideas. It will assess whether (1) answers are logically coherent, whether (2) they are grounded in readings, lectures, and discussions, and, when applicable, that (3) answers engage the key concepts of the course.

Advice:

Please, read the questions carefully! Each question normally consists of multiple requests, such as: "***Define***... and ***explain***... ***illustrate*** ... with an example..."

If you feel unsure about how to respond or don't remember exactly what papers or lectures said, trust your instincts and stay focused on the question. Explain in your own words, to the best of your abilities. Do *not* start to broadly talk about related things, to show you know other things.

It could be worth noting that longer answers are not necessarily better answers, since long texts increase the risk of ending up with inconsistencies.

1 HT25, Question 1

Delegation and Prescription. Your colleague, Linda, argues that a digital artifact, like a password management app, only performs actions because humans program it. In that vein, she argues, it has no agency.

Latour introduces the concepts of *delegation* – the transferring of human action to non-human artifacts – and *prescription* – the capacity to impose behaviors back on human users. Use these concepts to explain how a digital password management app exercises material agency. Provide specific examples of:

1. what gets delegated to the app, and
2. how it prescribes behaviors back to users.

Skriv in ditt svar här

1. The app gets delegated agency by the user in this case Linda, she has put her trust into this technology that is the password management tool/ app. In a sense by delegating the responsibility and action and control of her password she has given the application agency to store and remember this password. For instance if this system were to faultier or be none reachable than she would be affected by this and like Latour argues agency is more about effects when it comes to ANT (Actor network theory).

2. Linda is correct in a sense that the software programming and creation by humans is what gives the password manager agency but like Latour stated human and non-human actors can be viewed as having the same agency because removing a technology or a person from the network will have a great effect on the outcome and affect the entire networks tasks and goals. The management app prescribes back agency in terms of the applications intended use as a tool or easy way for the user to manage and keep track of their passwords. Without Linda interacting with the password manager is has no use or effect so in that sense it also prescribes agency back to her when she interacts with it.

Ord: 213

Besvarad.

2 HT25, Question 2

Affordances. Maria is working on her thesis about digital design. Studying the literature, she learns that affordances emphasize meanings over specific, inherent attributes of artifacts. While a focus on what users can do with artifacts seems attractive, she becomes frustrated reading that affordances are defined in *relation* to an observer or user. If an affordance is something relative, it seems pointless to her. How can such a subjective concept be useful for design?

What is Maria overlooking about affordances? Address specifically:

1. Why affordances, despite being relational, can still describe and explain general aspects of material artifacts, and
2. How this relational quality actually makes affordances useful for understanding and designing digital artifacts.

Skriv in ditt svar här

1. Affordances is properties or things you can do with an artifact so it is indeed within relation to the users needs and purposes when using an artifact or object. What she is overlooking and whats helpful with affordances is that it gives us a broad understanding of what materiality is and how it can be used, can be communicated and understood. Specially when talking about digital materiality, its basic afforances is that its reprogrammable and reproducible. By understanding this concept of basic affordances we can easier understand how digital technology can be produced at a minimum marginal costs, and how malluable, diverse, scalable and transparent digital material can be compared to traditionally physical material. For an example when talking about a what a digital artifact like a online book webstore can afford, it affords us great diversity in terms of a broad variation of digital books that can be bought thanks to how easy it is to reproduce digital books and also how easy it is to distribute and find the book thanks to digital platforms or artifacts like webstores.

2. Affordances relational quality makes them useful to understand descriptions and purpose and usability of digital material. By understanding that its reproducable and reprogrammable we can better understand in what way it can be used and how much it can be scaled for instance. Von Neuman brings up the anything machine being the computer as an example, to me this perfectly describes how a technical machine or artficat affords us a great many thins. The fact that it uses data as input and an algorithm as instructions to carry out different tasks, create different outputs makes it diverse and very useful for many different domains and field. By understanding the affordances of this thecnology we can understands its purpose and use, and appliance in that sense.

Ord: 307

Besvarad.

3 HT25, Question 3

Digital Materiality. David sees no fundamental differences between physical products, like a car, and digital products, like a smartphone. To him, both are manufactured products. Explain to David why digital artifacts are inherently ***unbounded***, ***open-ended***, and ***incomplete***, in ways that physical products are not. Specifically:

1. Explain what each of these three characteristics means in the context of digital artifacts, and
2. Resonate on the properties of digital technology that enable these characteristics. Use a concrete example, if helpful.

Skriv in ditt svar här

1. **Unbounded** means that the digital product isn't bound to any specific requirements or rules of how this technology can be used. Compared to a car which is intentionally built for a purpose to transport a person between place A and B a smartphone has a more broader purpose and different uses depending on the user needs. **Open ended** means that the smartphone like I stated has many different uses and can be reframe in many different scenarios to carry out different tasks, multipurpose if you will. It's also open ended as in the way you use the smartphone or digital product is not clerly defined and is up to the user to decide. Compared to a car which is more closed and controlled in its design also for saftey reasons which in that context is a good quality. The car is heavily regulated compared to a smarthone in order to restrict, apply constranits and create safety and control in comparison to a smartphone which inherently does the oposite, expresses freedome, less constraints and many different use cases. **Incomplete** means that the digital product like the smarthpone is not a complete or finished product when it gets released on the market, since it has software that can be updated and changed over time to fit different purposes the product never gets finished or complete in that sense. These days the same go with cars to be fare, but traditionally a car/ physical product when it arrives at a shelve or store the product is "dead" or it will not be updated or changed over time based on the qualitys and affordances that physical product as compared to a digital, software based one. In order to change a physical product the product would be need to be returend and rebuilt by the manufacturer but digital and software based products can get new purposes trough software updates overtime.

2. I think i responded to this question above, but digital technology show generativity trough these different material aspects like being unbounded, open ended and incomplete (changeable over time). Another example of a digital technology that has these same characteristics is the internet. Its relativley unregulated/ unbound and open ended in a sense that it can be used in whatever way people see fit. It is open for everyone to use and make busnisses or features och applications with and there fore creates change over time and is therefore incomplete. Its highly generative and pushes innovation in terms of thirdparty members providing new uses and purposes of this thecnology.

Ord: 425

Besvarad.

4 HT25, Question 4

Defining features of generative technology. During a product development meeting, Sarah argues that their company's new photo editing software is highly generative because it has many advanced features and can perform complex tasks efficiently. Her colleague responds that having sophisticated functionality doesn't necessarily make a system generative.

Using Zittrain's framework, address specifically:

1. What are the four characteristics that define generative technology, and
2. Apply each of these four characteristics to explain to Sarah what makes a product generative.

Skriv in ditt svar här

1. The four characteristics that define generative technology are:

- Leverage capacity
- Accessibility
- Ease of mastery
- Adaptability

2. A generative technology should be described by the four characteristics above. A generative technology is usually a digital one and an example of this is the internet. The internet gives its users or us a **capacity of leverage**, it can be used as a tool to enhance help us solve many tasks and goals for very many different domains and purposes. It is a multipurpose technology and for its meany uses I would argure that its gives us leverage. Leverage coming from the word lever, that gives us a tool to be able to do a certain task like opening a door or contraption. The internet therefore gives us leverage to create online businesses get access to information and knowledge and much more. Internet is very **accessible**, if you have internetconnection and some sort of physical devise where you can interact online you have access to internet, so basically everyone and anyone can use internet as a leverage for their buisness or to solve a problem or task therefore very accessible. Internet is realtivley **easy to use and master**. The interfaces are generic and its features usually intietive and easy to understand and use. Therefore you don't requier alot of knowledge or an education to interact with and use this technology so in that way easy to master. Since the internet has many different uses and tap into almost any domain it is highly **adaptable** depending on what you need the thecnology for. Lets say you are a social media influencer and you want to use internet to launch a webpage where you can promote yourself, you can do that. If you want an API or search tool implemented from google to your own platform on the internet you can do this as well. Therefore making internet as a technology very adaptable. These genrative features shows how digital technology is great in terms of supporting co-creation and innovation on large scale platforms and it's many different applicable purposes helps tackle alot of different problems and tasks.

Ord: 353

Besvarad.

5 HT25, Question 5

The Paradox of Control and Generativity. Liam believes that creative freedom and openness are the primary drivers of innovation. To him, any form of control will inevitably hamper creativity. He is therefore confused by the academic literature on *generative governance*, suggesting that control can actually reinforce (strengthen) generativity.

Explain this apparent paradox to Liam. Address specifically:

1. How can control mechanisms increase generativity and innovation in sociotechnical systems, and
2. What distinguishes generative control from traditional, restrictive control. Use a concrete example, if helpful.

Skriv in ditt svar här

1. This paradox is pretty complex a balance between both control and generativity is necissary for a digital technology to both be innovative and create new solutions to problems but also not turn caotic and as a place for mallicous actors to hurt innovation and our freedome and democracy. Control mechanisms such as securing can increase generativity in a sense that it creates legitimacy and a safe enviornments for thirdparty members or developer for isntance as a part of a bigger platform to creative innovative new products or services within that platforms boundries. A completely open and unsecured platform would post many problems in terms of malware, or exploitation by users that missuses the platform or services. But if the platform were to be overly controlled and restrictive this could also hurt innovation. This is where resourcing is a good concept where you help to expand a platform or technology to make it more generative and support innovation.

2. Generative control tries to create safe digital enviornments with levraging capabilitys where for example a app developer can be creative and get freedome to create what they want, but also keep thier intellectual properties safe and somewhat restricted to filter out any non serious app developer. A good example of this is Apples App Store platform which is hignly generative in terms of letting alot of thirdparty developers greate great aplications and functions that enhance the experience with the physical product the Iphone. It also uses boundary resourses and features within the phone to create even more value like the camera for photo functions within an app, for instance digital bank ID and scan features. Traditional or more restrictive control could be for an example a hospitals administrative system where there is alot of rules and regulations on how everything should bed documentet, who has access to what information and what changes can be done in the system. This is good in terms of securing paitients data and very sensetive information, while also making the laws and norms in that domain easy to follow for the emplyees. Altough this could post a problem in terms of them reacting to new technology and innovate already established systems, workflow and processes. Also reffered incumbants that struggles to digtialy transform thier organization.

Ord: 378

Besvarad.

6 HT25, Question 6

Resourcing and Securing. The company HomeEase has developed a new platform for the smart home. It aims to establish an open ecosystem, allowing third-party developers to create innovative applications. As the platform owner, HomeEase faces a key challenge: how to develop and deploy platform boundary resources (PBRs) that can both attract third-party developers and preserve platform control.

In the context of platform governance:

1. Explain what ***resourcing*** is and describe a scenario where HomeEase might engage in resourcing by designing new platform boundary resources.
2. Explain what ***securing*** is and describe a scenario where HomeEase might engage in securing through platform boundary resource (re)design.

Skriv in ditt svar här

1. Resourcing means expanding a platform, making it felxible and giving more incentive to thirdparty developers for instance to create new functions, features or applications to a platform to boost innovation. This could mean lifted rules and regulations but also a payment or an economic share for building new applications that increases the platforms value. Maybe a revenue stream for each of the developers application being downloaded or implemented in other systems or technologies. HomeEase can engage in resourcing by for example let thirdparty developers interact and use their platform to create new features. By building platform boundary resources such as API or SDK's they can have thirdparty developers make new functions or applications that solves unpredictable problems and future tasks over time within the platform therefore making it more generative and innovative. Lets say that HomeEase designs a control system where you can see the electrics or powersuppliage from different appliances within your home. At a start you can just see what appliance uses up the most power and what that would relate to in cost. When providing a API to this system or program a thirdparty developer could for instance make a analytical tool that booth show the homeowner energy usage over time and maybe make programmable features that lets the home owner turn those appliances of on demand, or get a better vizualsation of the power drain over time. In this way an API and tools to help the developer interact with the platform can help innovate the platform. In terms of control, maybe you don't want the user/ home owner to let a thirdparty see all of their appliances in their home therefore you restrict what the thirdparty developer can interact with and how much they see within the API, but still enough so that they can build and implement new features. Maybe have a controlsystems on the platform side that checks new software before pushing it out to users.

2. Securing means asserting control or restricting certain parts of a platform to make it secure, robust and stable. Like stated earlier securing is necissary for a platform to create boundaries and have control over their platform and create a safe enviornment where malware can't be spread and thirdparty developers feel safe to create new innovations. Securing gives the platform legitimacy and can also boost generativity as long as there is a good balance between rules and regulations and openness. One way to aproach this with platform boundary resources yet again is certificates or rules such as terms of agreement. These ploicies can help HomeEase to create regulations that make them have control over their platform but still gives the thirdparty delevopers clear instructions on what they can and can't do within the platform. Terms of service both protects HomeEase as a platformowner and keeps them in control while as a boundary resource helps thirdparty developers know what they can do or whats expected of them within that platform. To relate to the example in question 1 if a thirdparty developer wants to create something directly affecting a home owners power distributiont within thier home maybe this should be considered hidden information about the home owner or something that they cant interact with to protect the user and the platform for potential harm done by malissuce actors.

Ord: 551

Besvarad.

7 HT25, Question 7

Ontological Reversal. Explain the basic idea behind ***ontological reversal*** and reflect on the consequences of ontological reversal for the design of digital systems.

Skriv in ditt svar här

The basic idea behind ontological reversal is that the digital becomes more real that the physical. This is one of three concepts on how to understand innovation and new technologies impact on society and socio-technical systems. An example of ontological reversal is digital products such as games that have entire worlds and landscapes designed for the user to explore and sometimes these games take alot of time to go trough/ complete and thus affecting the users real world. If they spend alot of time in this digital realm this will surely affect them in the physical world.

This concept is good to keep in mind when designing digital systems in order to understand what societal impact a certain digital technology could have. When it comes to generativity the technology can adapt different uses and purposes form what the designer originally wished as the outcome of their design. Therefore by understanding ontological reversal this gives the designer a lense both to possibly invent digital material that encapsulates reality and gets the user hooked into applying and using this technology over physical maybe more ineffective products, or practices. But on the other hand to not create a system that maybe alters the physical world in a bad way based on the users interactions with the designed technology.

Ord: 215

Besvarad.