Seminar on digitalisation and AI in tourism and the hospitality industry

Centre for Tourism, School of Business, Economics and Law, June 7 2023

Today's seminar

- Interesting examples of digitalisation and AI in tourism and hospitality

- Mix of perspectives from research and examples from work in the field

- Addressing opportunities, challenges and future scenarios

Speakers

- Kristin Lundén, Nätverket Hållbar Besöksnäring
- Emma Björner, University of Gothenburg
- Danilo Brozovic, University of Skövde
- William Illsley, University of Gothenburg
- Fredrik Larson, High Five Innovation Arena
- Anna Laurin, Xperience Next
- Pernilla Bredberg, Visit Värmland
- Christoffer Johannesson, Dyno Robotics
- Rodolfo Baggio, Bocconi University

Kristin Lundén

President
Nätverket Hållbar Besöksnäring
(Network for a Sustainable Hospitality Industry)

Website: https://www.natverkethallbarbesoksnaring.se
LinkedIn: https://www.linkedin.com/company/nätverket-hållbar-besöksnäring/

Emma Björner

Researcher

University of Gothenburg

Centre for Tourism

- Transdisciplinary research centre at the University of Gothenburg
  - School of Business
  - Faculty of Natural Sciences
  - Faculty of Humanities
  - Faculty of Arts
- Promotes dialogue and cooperation between academia, society and the tourism and hospitality industry

Focus areas

- **>** 20 years of research, education and collaboration

- Food and gastronomy

- Maritime tourism

- Events and tourism

- Community development

- Climate and the environment

Digitalisation and AI in tourism and hospitality

- Digital transformation is shaping tourism and the hospitality industry

- Digitalisation and AI impact travellers throughout the travel cycle

- VR, AR, robotisation and automation impact and change travel experiences

Illustration of travel cycle, from Visit Sweden

Possibilities of digitisation

- Opportunities for customized information and experiences

- Take part in experiences remotely

- Virtual experiences of places that are sensitive or inaccessible

- Inclusion of more groups

- New forms of co-creation

Risks, limitations, obstacles

- Ethics

- Integrity, privacy

- Consumer resistance

- Technological stress

- Information overload

- Impersonal experiences

Danilo Brozovic

Associate Professor

University of Skövde

Notes from Danilo's presentation

- I will talk a little about an article that I wrote together with my colleague Hiro Saito from Asia Pacific University, Japan.
- Tourism is not my primary research interest.
- Together with colleagues at the University of Skövde I am doing research on organizational resilience, which relates to organizational ability and how to successfully cope with crises.
- The article is related to this research interest.
- In the article we identify five domains of transformation in the tourism industry on a broad scale.
- Organizational resilience was one domain.
- The strongest domain that we identified was accelerated digitalization in the industry.
- We read 250 articles from different newspapers and magazines published during the pandemic, between Feb and Oct 2020, to see how tourism firms and the tourism industry adapted. Accelerated digitalization was something that came very fast.

- They called it VR tourism, as a substitute to the real thing, the real tourism experience.
- Companies, museums and other institutions offered experiences such as visiting Egypt's museums and the pyramids online, enjoying Japan's cherry blossoms online, and so on.
- They called it virtual reality, but it was actually much more rudimentary than that. They used apps, AR and Youtube.
- Companies operating in tourism will have to develop new kinds of interorganizational relationships if they want to offer VR tourism. And they will have to develop IT competences.
- We also wrote and speculated that in order for VR to become more immersive, technology will have to develop.
- I guess our other speakers will talk more about this. Thank you for me!

William Illsley

Researcher

University of Gothenburg

Notes from William's presentation

- Digitality is often seen as buzzword or means to attract audiences. However, its' impact is severely limited by inappropriate context, preparation or audience consideration.

- The goal of the digital application and the process of its creation must be well thought out and constructed as it is contingent upon in its deployment.

- As a case study, an example is the digital material accompanying the Birth of Gothenburg exhibition, created by the City of Gothenburg Museum, Göteborg & Co, Gothenburg's City planning office and Visual Arena at Lindholmen.

- What works in the museum, alongside a pedagogically considered exhibition design, content and narrative, is not necessarily going to work elsewhere as a standalone exhibit.

- This is somewhat evident in the use of the material at the Tourist Information Office at Kungsportsplatsen, Gothenburg, as well as at Volvo Ocean Race and Kulturkalaset.

- Without sufficient narrative and empirical support, access to cultural heritage is severely limited and based only on aesthetics.

- For museums as facets of the tourist industry, there is often a clash between the desire to create a well-researched virtual space and a visually impressive or entertaining virtual space.

- While they are not mutually exclusive, it is important that any facet of edutainment, whether as a virtual tour or gamified access, must allow for source critique and give the user to determine what is real and what is not.

- Interview responses from a recent research project (Nya teknologier mellan forskning och publik) shows that is not uncommon for museum visitors to consider digital aspects of museums as fact, purely by virtue of their presence within a museum setting. At worst this can lead to dangerous reproduction of misinformation or harmful tropes; at best it weakens the status as knowledge institution.

Fredrik Larson

Project Manager

High Five Innovation Arena

Summary

The funding:
Tillväxtverket* was in 2022 tasked by the government to promote the transformation and sustainable development of the hospitality industry. One effort is about strengthening small businesses in the hospitality industry to sustainably manage digitization's opportunities, risks and competitive advantages for increased business benefit.

Digiboard Visit is one of six projects with a total funding of SEK 5.2 million to increase digital business skills in the hospitality industry.

* **Tillväxtverket**, The Swedish Agency for Economic and Regional Growth, is a government agency that works to promote sustainable growth and competitive companies throughout Sweden. We achieve this by supporting and strengthening companies and regions. Tillväxtverket is a government agency under the Ministry of Climate and Enterprise.

Digiboard VISIT

The what:
The project focuses on three themes:

- Data-driven business development
- Digital transformation through agile development processes
- Digital security.

Participating companies will develop a digital strategy, visualized in a prototype and increase knowledge of digital risk assessment.

The how:
With Design Thinking principle, a business developer with the aid of a design studio, takes the participating party through the stages of **Empathizing**, **Defining the problem**, **Ideating**, **Prototyping** and **Testing** with the aim of producing a digital prototype tailored to the challenges, problems and opportunities for the specific party.

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Short term goals

- Tools for development of a digital strategy as well as visualization, materialized in a prototype

- An agile model that the companies themselves can use to handle digital opportunities/challenges arise

- Increased knowledge of risk assessment from a business and financial perspective

- Increased knowledge of how digital tools can create new services, increased competitiveness and sustainable growth

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Long term effects

- Foundation for more effective strategic decision-making in the hospitality industry companies in Halland, where the time is significantly shortened when it comes to implementing new necessary digital tools to support its strategies.

- More flexible and need-based way of working that is not delayed due to the lack of willingness to change or digital fear.

- In the long term, we want more companies to become innovative and reflect on the impact and power of modern technology with a sustainability perspective - both in terms of management, finance, social and ecological sustainability.

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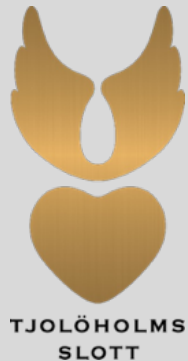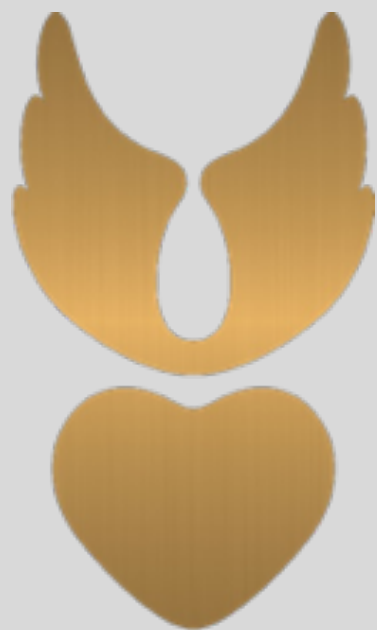EMPATHISE   DEFINING   IDEATE   PROTOTYPE   TES

Participants

TJOLÖHOLMS
SLOTT

TJOLÖHOLMS
SLOTT

EMPATHISE

DEFINING

IDEATE

PROTOTYPE

Problems
- Guests may find that it requires a prior understanding to come and experience the castle
- Once in the area, it can be difficult to know where you are/are, lacking information and confirmation of where you are
- No natural way to measure the number of visitors to the castle today (outside of events)

Challenges
- Guests want to be able to move freely without a guided tour, even outside the main area (garden, other buildings, etc.)
- Ensure that guests who move freely receive the information and required to have a correct experience of the castle, today it is difficult to grasp the surroundings without the right context
- How do we measure that we contribute to the place brand for Kungsbacka.
- How do we get a modern expression of the castle (how can we relate/compare the history of the castle to something current
- Missing data/information on guest demographics and feedback on the castle

Possibilities
- Have guests experience the entire castle and have guests stay for coffee/lunch
- Digital guide to more easily inform guests about the castle
- Able to deal with larger volumes of visitors efficiently
- Be able to communicate the history of the castle in a more fun and interactive way

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Solution: Web Application

Landing page

- Collect brief data about the guest

    + Enable to collect email address + name to get started   builds customer database

    + Make it possible to market events via email

- Quickly see all the stations you have in the castle + Practical info such as toilets etc.

    + Guests get a good overview and the option to go where they want

    + Be able to read about the parts of the castle independently (possibility of hiding)

- Let guests choose either a "challenge/loop" or be able to go to each room and then do the room's challenge

    + Possibility to tailor the loops according to target group and interest   Better conditions for a successful loop

    + Make guests discover the entire castle

    + Attract guests to coffee at the castle

Additional Suggestions

- Include ticket purchases in the application to facilitate admin at the entrance and save time

- Possibility to create temporary challenges at e.g. different seasons (Easter, Christmas, etc.) to attract visitors
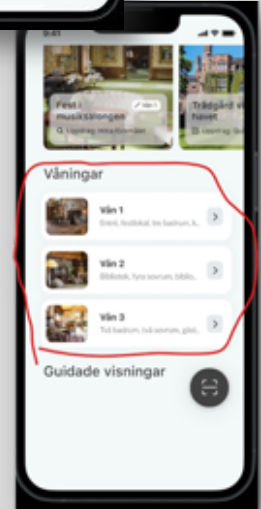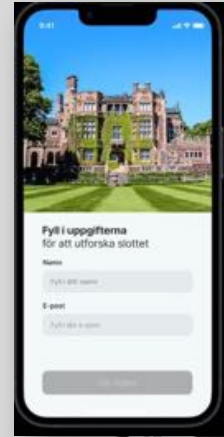
EMPATHISE

DEFINING

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Stations

- Easily inform guests about the room, attraction or design without interaction with staff

  + Enhances the entire experience with information for visitors without a guided tour

  + The guests can actively choose how much they want to learn or by creating the opportunity to read more

  → Create an interest so that after the visit they become interested in reading more about the castle and its history

- Playful with challenges/activities at each station to make learning more fun

  + Enhances the entire experience of a tour of a castle

- Let the guests choose a "challenge/loop" depending on their conditions (child, family, adult or similar)

  + Possibility to tailor the loops according to the target group → Better conditions for a successful loop

  + Make quick visit guests stay longer → motivated to go through all stations

Additional suggestions

- Change the content of each station over time to enhance the experience of repeat guests

- Build a CMS tool where you can create new stations yourself with "templates" to always be able to expand your content in th

- Have a contact button in the app for service   that a guide comes and answers any questions. questions about that room

- Build features to share the content on social media (eg selfie with Blance).

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Feedback/data gathering

- Create a popup, link or station to encourage giving feedback/info

  + Possibility to collect data from different customer groups based on selected loop

  + Possibility to exchange questions and collection points if interested

- Ability to create feedback about each station and room

  + After each completed challenge/activity, the visitor can answer optional questions about the room

- Option to link to reviews on Tripavdivsor, Google, Facebook, etc.

Additional suggestions

- Send out feedback forms to visitors who used the app to provide input on their stay

- Send surveys to visitors

- Send emails to promote events or news at the castle

Link prototype:

https://www.figma.com/proto/ztpGnfd9ZBs0tJwwxOPXWx/TJOL%C3%96HOL

M-SLOTT?page-id=0%3A1&node-

id=32%3A139&viewport=483%2C551%2C0.05&scaling=scale-down&starting-

point-node-id=32%3A139

Insights, successes and challenges in implementation. What has surprised? Unexpected results. What is unique about the project?

Internal

Challenges: Staffing HighFive – The time & the ambition - Easy to run away in "cool ideas" but which do not really create value for the companies

Successes: Great interest in taking the concept further

Uniqueness: The ability to prototype

External

Challenges: Initial discussions/Belief in the support system - The balance between innovation height and operational challenges - Low digital maturity

Success & Uniqueness: Deliveries in such a short time, All companies believe that in addition to the prototype, the process to the prototype has been educational because they have been forced to answer questions and think through their problems/needs and challenges

Insights

The importance of being able to deliver a broad result for this target group The importance of client competence.

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Notes from Fredrik's presentation

Prototype for Tjolöholm's Castle

- This is a prototype of a web application.
- When you arrive at the castle you scan a QR code.
- The app is based on a combination of AR functions, games and quizzes which seems to create a higher sense of involvement in the actual place.
- It's both for children and adults.

Prototypes developed

- All the prototypes developed were different.
- It was all different kinds of participatory solutions for the participating parties; and they all ended up with a prototype that they can continue work with.
- We had a lot of success with these prototypes and a lot of involvement and satisfaction.
- I think all the participants are going to continue in some ways with the prototypes we developed.

Anna Laurin

Project Manager

Xperience Next

XPERIENCE NEXT

**The innovation arena
for the experience industry**

MOBILITY

DATA DRIVEN DEVELOPMENT

BUSINESS MODELS

DATA DRIVEN DESTINATION DEVELOPMENT

Lindholmen
Science Park

A sustainable destination is a **system of services** that must **develop in symbiosis** with each other. At Kållandsö, we've built a digital twin that helps the actors involved to play a development game based on real consumption data.

Kållandsö - Proof of Concept

Map layer - Game Mode

Map layer - According to scale

Algoritm/game engine

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Kållandsö - Proof of Concept

camping

restaurant square

cultural heritage

golf court

"naturrum"

b&b

hotel

marina
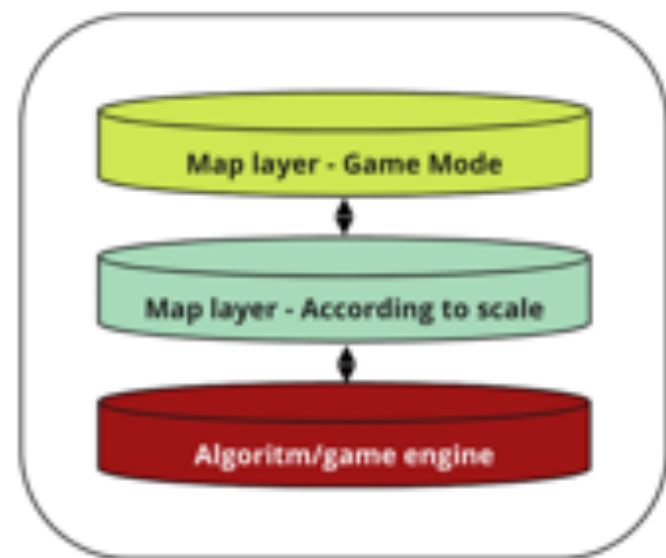
Notes from Anna's presentation

- Xperience Next is an innovation arena for the experience industry, run by Göteborg & Co and the Västra Götaland Region.
- Our main focus is on mobility, data driven development and business models.
- One data source that is receiving a lot of attention in the industry is consumer data, which has been investigated by Göteborg & Co in collaboration with Mastercard during last year, in a project called Tourism Agenda.
- Experiences from that project ignited "Project Kållandsö", where we, during last winter looked into how a digital twin and gamification can enhance collaboration between actors that are partners, in a very informal economic system at a destination.
- Läckö Castle is a magnet for the destination, and attracts approx. 300 000 day visitors every summer.
- We gathered 10 companies that are interdependent even though they don't collaborate much today.

- Since a sustainable destination is a system of services that must develop in symbiosis with each other, we tried in this project to see if a digital twin and gamification could enhance their ability to work together and understand the interdependence between for example a main attraction, an eating area, restaurants, other activities and possibilities to stay over night.
- A main insight during the project was how little the companies collaborate, even though it's quite a small destination, with not so many actors. The project provided an amusing, relevant reason for the companies to meet around common challenges.
- With this game we managed to gather a wide range of different companies, with different challenges, and to enhance common understanding and collaboration.
- This is an example of how gamification and digitalization can make a destination to get greater insights and a greater deal of collaboration, between the seasons.

XPERIENCE NEXT

Lindholmen
Science Park

Pernilla Bredberg

Project Manager

Visit Värmland

Innovation arenas in the tourism industry in Värmland

Railblox Hagfors

Marja's Adventure

"This is the customs house. They control everything that crosses the border here. People, goods, well, everything. Refugees who cross the border are sent by the military to the landsfiskal (a local authority) in Torsby. There, they are deloused and sent to refugee accommodations outside of Värmland. Are you coming from Norway? It's dangerous if the military sees you. You're not allowed to be in Värmland. When I turned seven, in 1940, they decided that foreigners were not allowed in Värmland. Come, let's run further. But you mustn't be seen by the military."

Innovationsarenor
befolkändringen i Värmland
2021-2023

VÄRMLAND

compare

Region
Värmland

Notes from Pernilla's presentation

- I will tell you about what we have been working on in the last two years when supporting tourism businesses in their innovation journey in digitalization and green transition.

- It's a collaborative project between Visit Värmland and Compare. Compare is an IT cluster, so we are combining the tourism industry with IT and digitalization; combining those expertise to create interesting solutions and innovations.

- In our project we have the task to create interesting solutions and innovations; and innovation arenas; and today I would like to tell you more about two of them.

- Hagfors Railway Museum is our first project that we worked with for 8 months. The purpose of the project was to generate interest in the museum as a travel destination for families, and to generate an interest for the cultural heritage represented by the trains and carriages among new generations.

- Together with the museum we decided to create something in Roblox, and that something turned into a digital twin.

- But before I tell you more about that, let me tell you about Roblox. Roblox is a gaming platform with over 200 million users worldwide in the ages between 6 and 16.

- It's a social platform where kids can socially interact with each other online. It's a metaverse where you can create your own characters, avatars and personas, and play games together with your friends and make friends all over the world.

- In an early stage of this project we got in touch with Karlstad Makers, who we have been collaborating with in this project. They educate kids in programming and in Roblox.

- This Saturday we have a launch of the test version for Railblox Hagfors. It's a digital twin that is nearly and exact replica of the real location. It's a unique solution where we combine the digital and the physical worlds.

Notes from Pernilla's presentation (cont.)

- Players to receive challenges and clues in the game that can be solved physically, and vice versa; or to obtain codes in the physical world that provide advantages in the digital world.

- In the picture (on the right) you can see some of the pictures of the trains we have created in the game.

- On the link (to the right) you find a short view of the twin.

- Players can explore and wander through various environments and the game includes mini games inspired by Hagfors' history, such as the iron horse, a heavy and unwily train that was difficult to control in real life.

- In the mini game, kids can try their hands at steering, loading coal and maneuvering this heavy piece. They can also play conductor, collecting tickets from passengers and keeping track of both new and old passengers. One of the positive effects of this project has been that Hagfors municipality has become involved and seize opportunities to continue developing in the Roblox environment with schools and students.

https://clipchamp.com/watch/5H1SowKBInm?utm_source=share&utm_medium=social&utm_campaign=watch

Notes from Pernilla's presentation (cont.)

- I will now tell you briefly about **Marja's Adventure**
- Mattila is a place in northern Värmland close to the Norwegian border.
- They have a lot of visitors during wintertime but less during summertime, and few families with children.
- Purpose: create activities for children and their families.
- In the process it has been very important to have respect for nature and the culture that is present in the area.
- There is a strong connection to the Forest Fins who moved to the area in the end of the 16th century.
- However, other eras have also taken place in the area that are more current, such as World War II when neighbours came together and helped refugees from Norway.
- The border did not exist for the locals, before the war, but now it was very clear. We all thought it was a very interesting subject to dig deeper into.

- We hired the "Värmlandsantikvarien" who collected over 60 stories from people who used to live in Mattila and its surroundings during this time.
- Based on these stories, we organized workshops involving local businesses, locals and associations.
- The purpose was to create an experience that not only increases interest in nature and hiking, but also raises awareness of war and humanity, something that has become closer to all of us lately.
- The result was a digital hiking experience for children and their families, a kind of radio theater in which we blend hiking, history, adventure, and education in an interactive and exciting way, in "Marja's Adventure".
- The adventure is inspired by the collected stories, where we follow 10-year-old Marja who meets a refugee, and guides them around the site, including hidden and preserved fortifications and houses in nature.

Christoffer Johannesson

Robot Developer

Dyno Robotics

Dyno Robotics

Honey, I think we've roboticized the kids

Who am I?

Christoffer Johannesson

Robot Developer

christoffer@dynorobotics.se

+4670-3515056

Dyno Robotics was founded by four engineers from Linköping university.

Elsa – Air Force Museum

flygvapenmuseum

Dyno Robotics

Folke filbot - Visit Linköping

Police Officer – LasseMajas' Detective House

Notes from Christoffer's presentation

- I am here to talk about a few of my favourite projects.

- Let me first introduce you to Elsa, named after the first female Swedish aviator, Elsa Andersson.

- "Elsa" is a guide at the Swedish air force museum in Linköping. There she uses AI, much like chat GPT, to answer questions from children and interested adults as well, to help them get a better experience at the museum. She's also connected to the museum database and can thus answer questions about the collections, the planes, the propellers, etc. And she can also display images and videoclips from the museum archive, which would otherwise have been unused or unseen material.

- Next up we have "Folke filbot". Together with Visit Linköping we made another solution. Folke is placed out by the water locks in "Bergs Slussar" and is used to help tourists with anything – help them find a toilet, a good local restaurant, tell visitors how warm the water us. He Swedish, English, German and Chinese.

- Lastly we have the so called "Police officer".

- For those of you familiar with Swedish children literature, we have everyone's favourite detectives, Lasse and Maja. They solve every case and mystery in their local town, anything from diamonds to missing camping equipment.

- Linköping has a place called "LasseMajas Detective House". Here children can – in an escape room inspired way – solve mysteries themselves.

- In the last room of this escape house, there is a phone call, a remote Teams meeting set up with the town's local police officer. Here the kids get the last clue from the police officer and if they give the correct name to the police officer he will reply that they have succeeded in the mission.

- A picture will be taken of them with a web camera, and it will be posted in the local town's newspaper, Vallebladet.

Contact us!

Webpage:
https://dynorobotics.se

Featured projects:
https://dynorobotics.se/featured-projects/

Christoffer Johannesson

Robot Developer

christoffer@dynorobotics.se

+4670-3515056

Rodolfo Baggio

Professor

Bocconi University

Notes from Rodolfo's presentation

- We've seen wonderful examples and implementations.

- Let me go back to a couple of foundational issues, because I think they are important. One is about the whole world about digital matters; lots of buzzwords keep popping up.

- The simple fact that we're still talking about digital transformation is a symptom. It's a symptom that in the last 30, 40 years we haven't done that much. We have created wonderful examples, prototypes and so on but not… if you go to the basis, we're still talking about the importance of digital matters in tourism; it should be taken for granted by now.

- I see and participate in hundreds of talks, discussions, debates; and most of these, from my perspective, is missing an important issue and I think it's the preparation.

- Transformation should not be about technology; technology is the last mile. The first thing to do is a deep and thorough revision of processes, business models, attitudes, etc.

- If we keep using old procedures they conflict with digital tools; they don't match. Unless they revise profoundly what and they are doing things it's difficult to get real advantages.

- All of these digital gadgets will remain gadgets; they will not be integrated into a digital strategy that may lead to development and to improvement of conditions.

- Today the buzzword is artificial intelligence, machine learning, etc. Many forget that these are highly data hungry. We need tons of data to be able to use these things well.

- When it comes to data we know what the problems are. Apart from the usual concerns about completeness, timeliness, etc. there are a couple of things that often are forgotten.

- One is that we need a good definition of standards of representation of data, objects, transactions, etc.

- Another is that we need a rigorous definition of and good ways to assess the reliability of what we collect.