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CJKR CENTER OF JOB KNOWLEDGE RESEARCH

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Barriers to Adoption for Learning Analytics at a Dutch University

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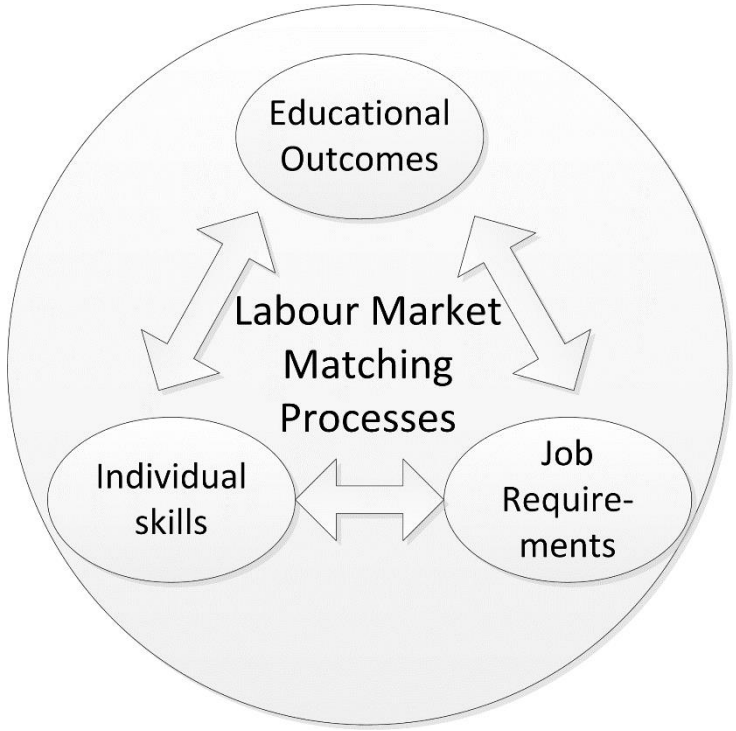
Who are we?



The Center of Job Knowledge Research is a multidisciplinary thinktank and research incubator that aims to engage stakeholders from academia, industry, and government to elucidate how job knowledge may be used to facilitate individual, organization, and nation level person-education-workplace matching processes.

On to HR

MedAssess Adaptive Medical Profession Assessor

eduworks

OntoTech

Contents

- UvaInform History
- Process and Pilots
- Organization and Project Management
- Lessons Learnt

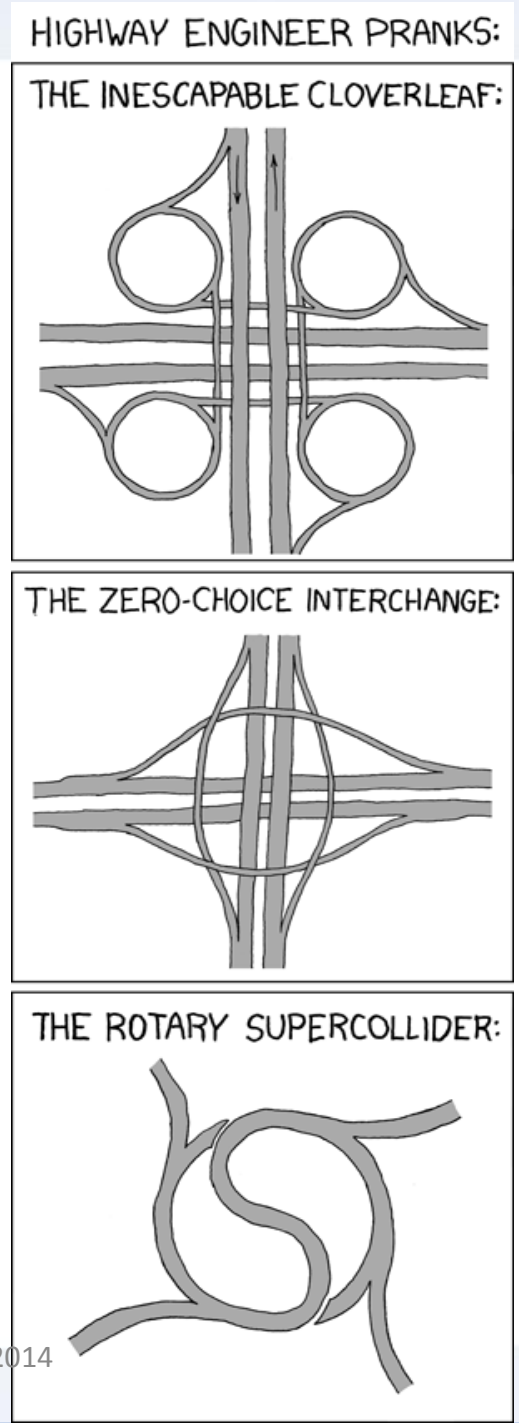
The UvAInform Project - History

- Initiated as a proposal from the ICTS Department
- Expertise group Education ICT (EGO-ICT) Reserved budget of 150K
- EGO-ICT dislike of (bottom-up) tender procedure with limited strategic vision
- Focus Group Learning Analytics Established Late 2012
- UvAInform proposal approved in June 2013
  - Central infrastructure (LRS)
  - (De?)centralized pilots

Responsibilities of the LA Focus Group

- Create vision on LA
- Avoid duplication of effort
- Starter engine for ethics board
- Source of advice for LA (related) projects
- Communication channel with the VU and HvA, Surf, & Internationally

UvAInform Process



UvAInform Process

The process

Focus Group: evaluation criteria

Rated Evaluation Criteria (1: Not at all important-7 - Extremely important)

1. Feedback for learning (yes/no) 6.33
2. Scalability of the project (Course / Faculty / Institution / National / World-wide / National / International) 5.89
3. Feedback for teaching (yes/no) 5.86
4. Feedback for curriculum (yes/no) 5.75
5. Ethical concerns associated with the project (free text) 5.53
6. Use of the common infrastructure (multiple-select, none, dashboard, Learning Record Store, Sakai CLE xAPI enabled) 4.94
7. Estimated Cost (Low < 10K, Medium 10K-20K, High > 20K)" 4.92
8. Production of open source software (yes / no) 4.83

Rated Evaluation Criteria (1: Not at all important-7 - Extremely important)

9. Sustainability (No chance of adoption, planned as a local service, planned as an UvA wide service) 4.83
10. Project risk (such as bottleneck with resources, project deadline (low, medium, high) 4.78
11. Dissemination of knowledge (whitepaper, scientific publication) 4.78
12. Reusability from external projects (none, some, totally) 4.69
13. Product Risk such as nonsense feedback being provided to students (low, medium, high) 4.61
14. Complexity (low, medium, high) 3.56
15. Novel research? (yes/no) 3.33

UvAInform Process

The process

- Focus Group: evaluation criteria
- Definition of initial pilots
- Discussion with an external expert (Erik Duval)
- Dilemma – how to agree on the separate pilots
- Dilemma – To LRS or not to LRS?

Learning Record Store

- Community sourced, secure, scalable repository/infrastructure
- Store and retrieve statement data reliably and ensures a good scalable storage layer for various types of data and data streams
- Scales above 100 billion records.
- These data can be made available in a secure and consistent way for further analysis.
- Upon this LRS infrastructure dashboards can be built or developed for the delivery of (analysed) data to students, educators, and researchers

http://tincanapi.com

UvAInform Process

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- Dilemma – To LRS or not to LRS
- Definition of LRS as separate project
- All faculties present their research ideas (Pecha Kucha Format)
- Dilemma – How to agree on pilot requirements and associated budgets
- Result: 7 small pilots in 3 pilot clusters

Cluster 1: Mirroring of traditional and non-traditional study performance to students

- UvA Mirror (COACH)

Visualize the position of individuals in the context of the group

- Cluster Exam Feedback (qDNA)

More fine grained mirroring of exam results to provide students and teachers with insight in the development on four competencies and knowledge goals

Cluster 1: Goal Setting in Education

- Building on functionality of schedules (www.roosters.uva.nl) to include goal setting and goal tracking.
- Students will be instructed/taught to formulate goals in a concrete manner such that they are specific, measurable, attainable, relevant and time-bound (SMART).
- Dashboard will facilitate individual students to choose from, and set their own goals (and deadlines) against specific course events deadlines based on mirrored data.
- Dashboard shows them in a glance how they are scoring/succeeding in attaining the goals compared to their fellows

Cluster 1 Side project: Labour market oriented learning trajectories

Match learners' pathways to those of alumni

Help incoming students find a long term focus during their university education

Mirror alumni data to current students based on desired/acquired job roles

Cluster 2: Using specific student data to provide feedback for teachers

- Assignments' criteria validation

Visualization of Turnitin scores for students and teachers over (partial) assignments or courses

- Web lecture statistics

Visualization of use of video's/weblectures to find potential problems, difficult material to improve teaching, provide better remedial material

Cluster 3: Using other people's data to provide recommendation system to students

- Reduce dropouts in Bachelor programs

Get existing and new data in gathering as much demographic personal info on learning styles, motivation, personality to optimize prediction of study success

Aim: First find predictors, then start developing interventions

- Still under negotiation

UvAInform Process

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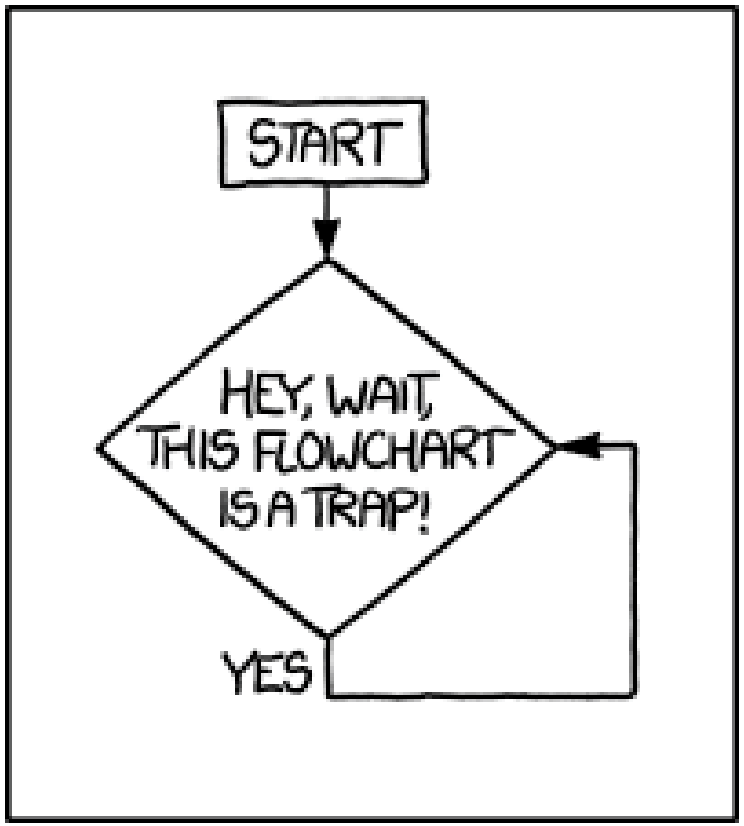
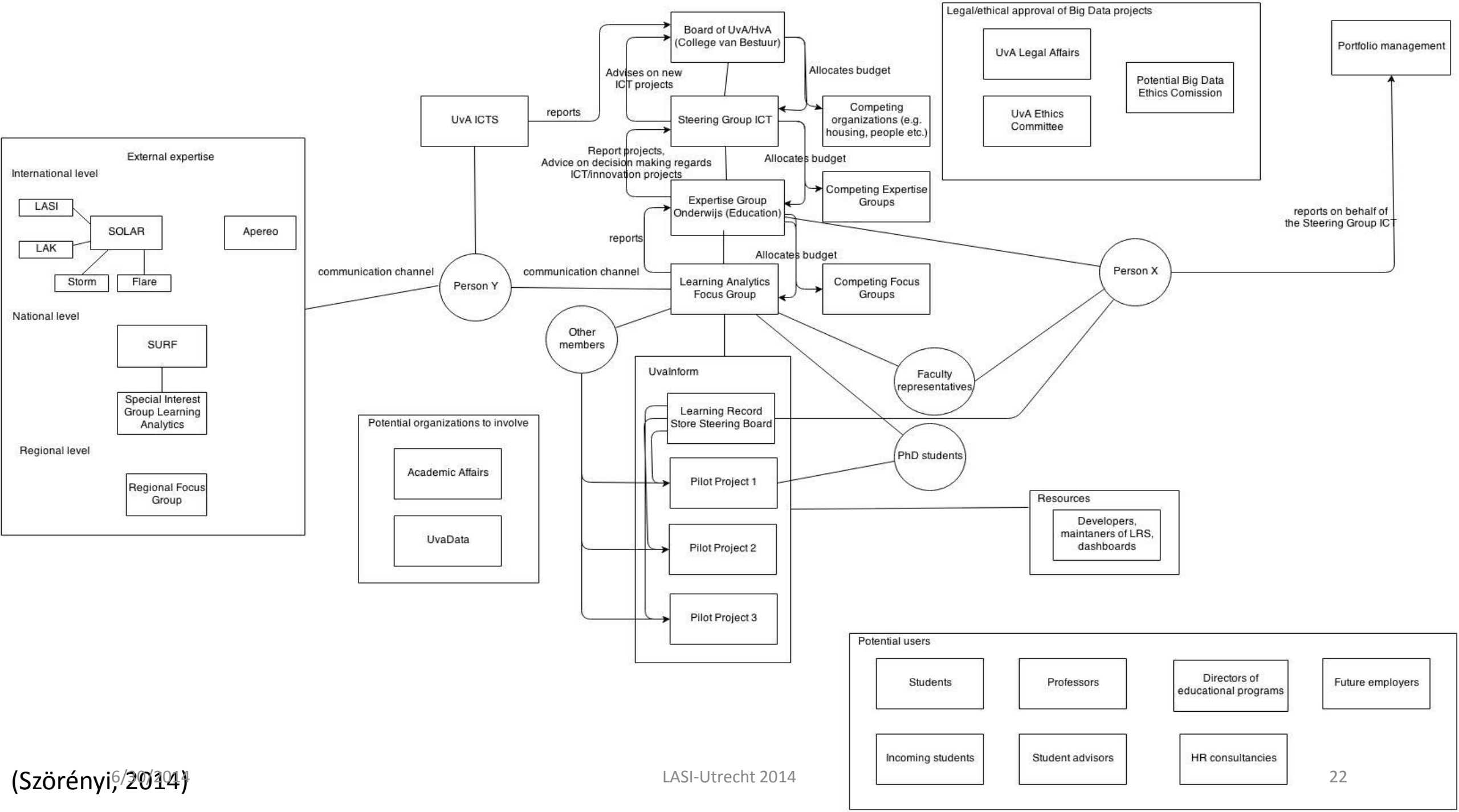
- All faculties present their research ideas (Pecha Kucha Format)
- Dilemma – How to agree on pilot requirements and associated budgets
- Result: 7 small pilots in 3 pilot clusters
- Challenge: Clarifying requirements and exploiting synergies

Organization and Project management





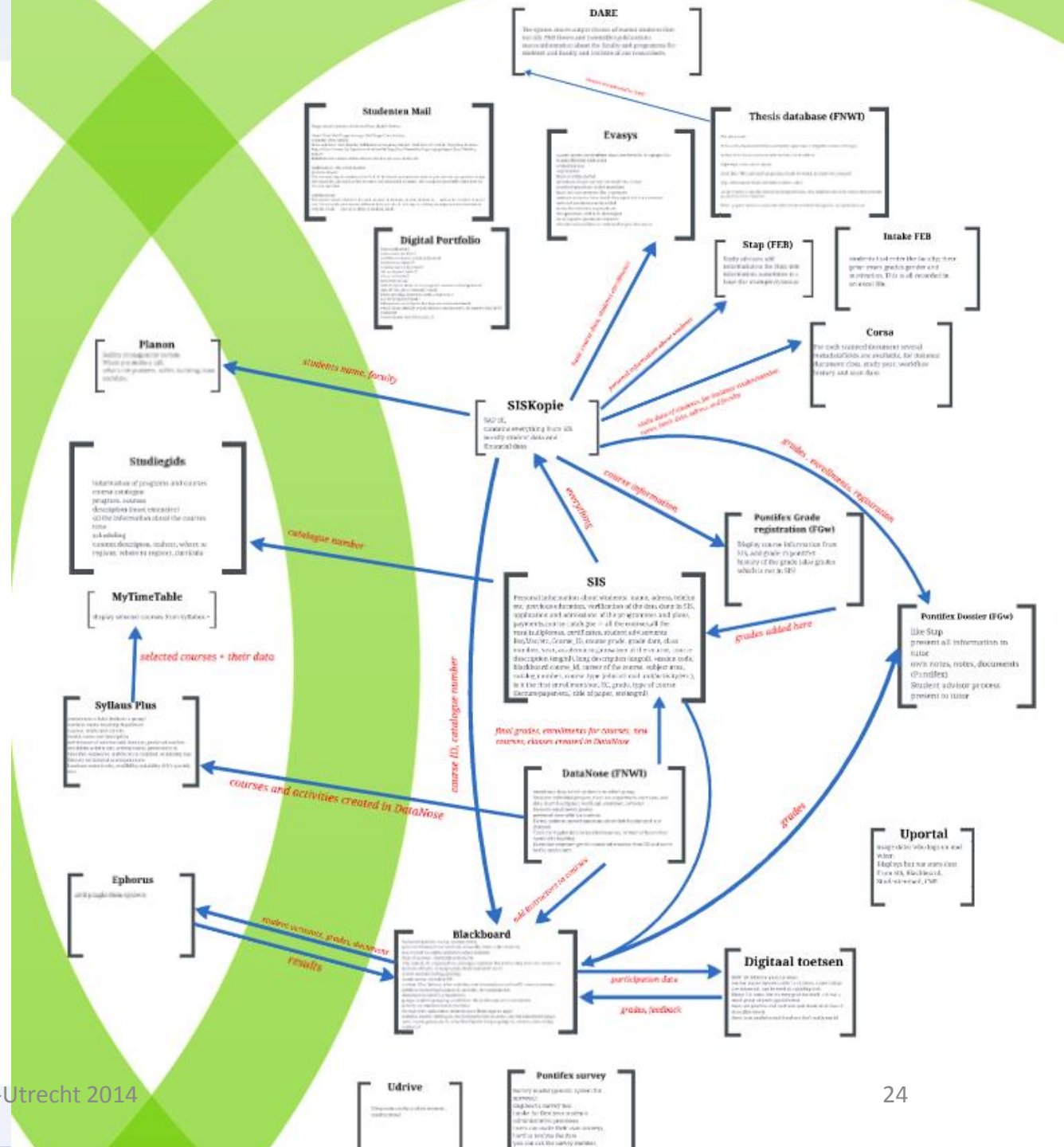
(Szörényi, 2014)

Engaging critical stakeholders

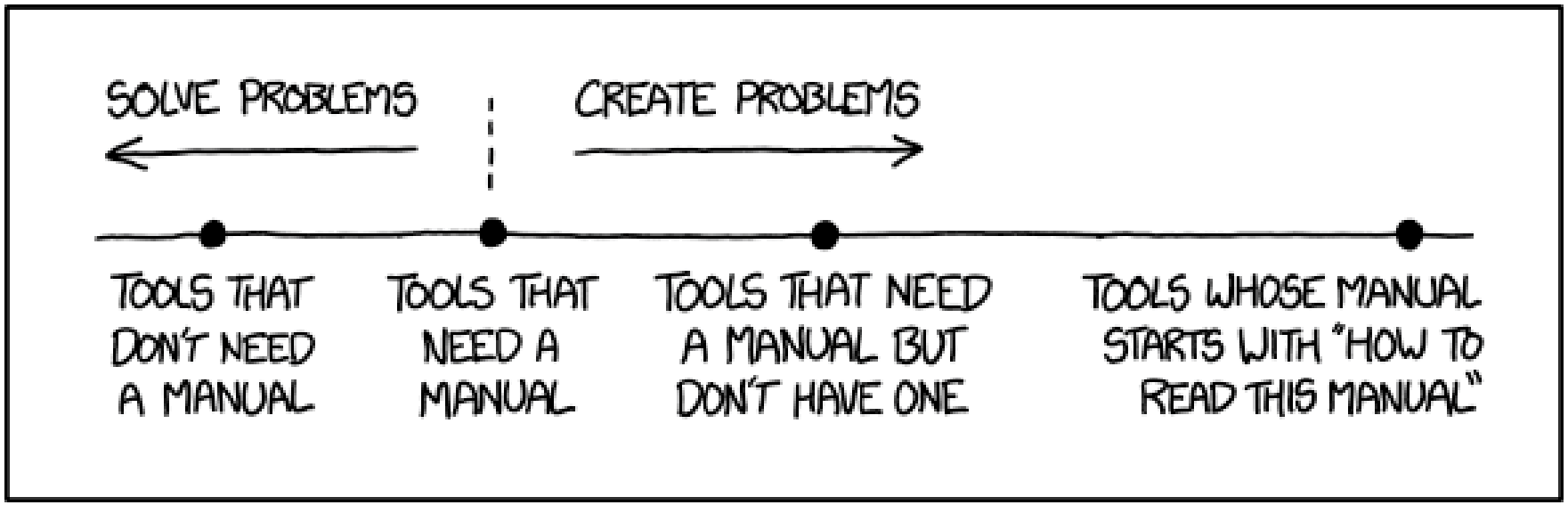
- Potential users
  - Students
  - Teachers
- Legal/Ethical Committees
- University Administration
- Researchers
- Communities outside of the organisation

Data owners

- Who is owning what data?
- Highly political issue
- Organizational resistance
  - Gatekeepers resistance
- Complex infrastructure



Lessons Learnt



Positioning a learning analytics project

- Centralized vs. decentralized
- Research vs. practice
- Imposed vs. desired
- Technology vs. Pedagogy
- Make or buy (resource oriented)
- Generic infrastructure vs. pilot specific infrastructure in relation to UvA learning analytics lifecycle
- Adoption of best practices or local identification thereof

Lessons Learnt

- Organizational awareness is growing
- LA is on the agenda in many stakeholder groups
- Data is everywhere, but accessibility is an issue
- Need to document failures and agreements properly
- Legal and ethical concerns are high on the agenda

Towards a Center of Data Governance and Innovation

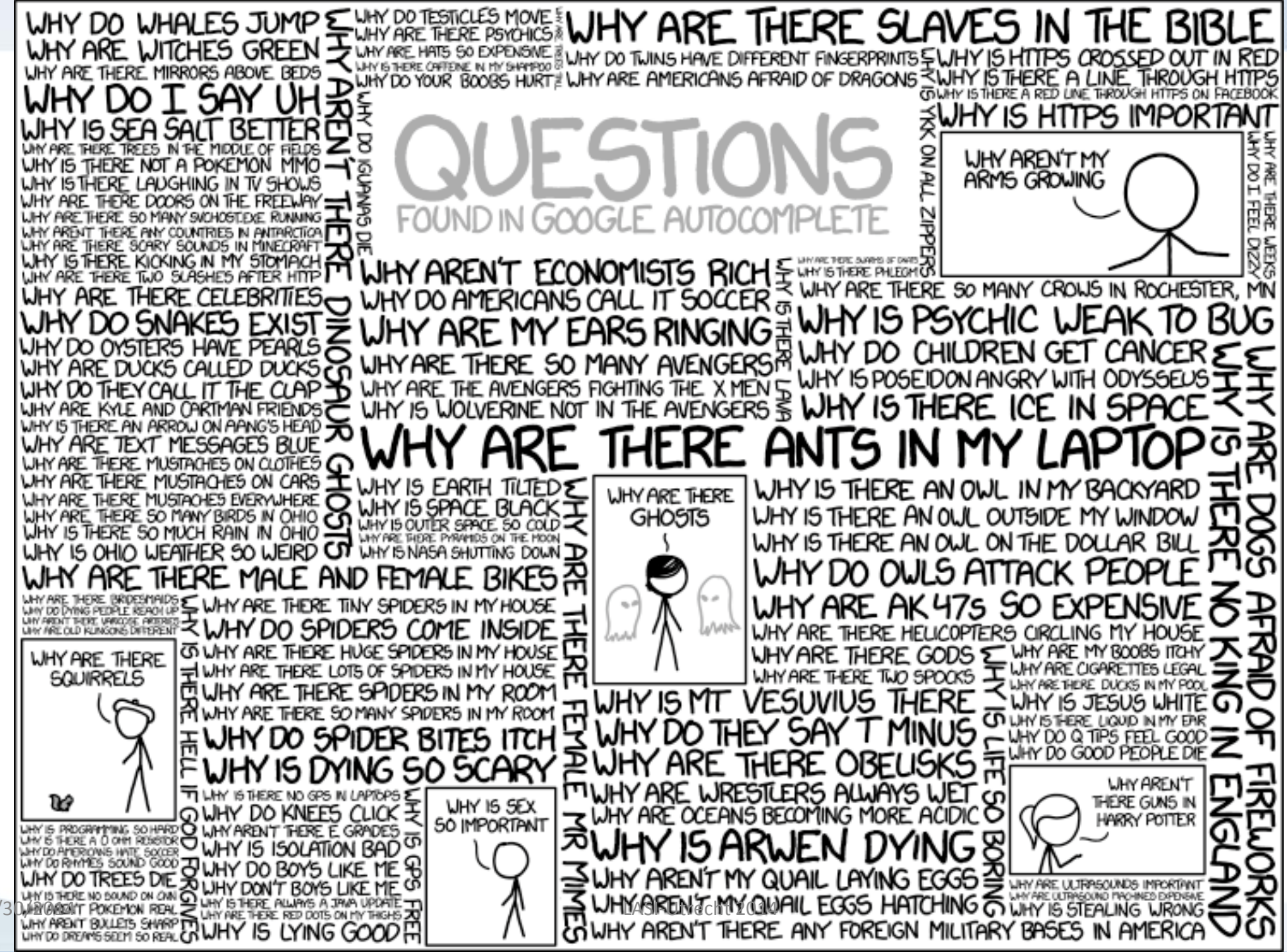
- How do researchers/project members involved in data science projects ensure full compliance with the UvA's ethical standards?

- How do these people, whose expertise is seldom or never in the legal domain, ensure that their work does not infringe on the law?

- Threat: bad publicity, legal costs due to litigation caused by uninformed data management, efficiency losses due to different parties having to reinvent the wheel (left hand does not know what the right hand is doing)

Organizational Lessons

- Responsibilities are not clear – not connected to the budget
- Decisions are hard to make
- Internal policies and processes should be clearer
- Keep the university's vision in focus


QUESTIONS
FOUND IN GOOGLE AUTOCOMPLETE
WHY DO WHALES JUMP
WHY ARE WITCHES GREEN
WHY ARE THERE MIRRORS ABOVE BEDS
WHY DO I SAY UH
WHY IS SEA SALT BETTER
WHY ARE THERE TREES IN THE MIDDLE OF FIELDS
WHY IS THERE NOT A POKEMON MMO
WHY IS THERE LAUGHING IN TV SHOWS
WHY ARE THERE DOORS ON THE FREEWAY
WHY ARE THERE SO MANY SVCHOST.EXE RUNNING
WHY AREN'T THERE ANY COUNTRIES IN ANTARCTICA
WHY ARE THERE SCARY SOUNDS IN MINECRAFT
WHY IS THERE KICKING IN MY STOMACH
WHY ARE THERE TWO SLASHES AFTER HTTP
WHY ARE THERE CELEBRITIES
WHY DO SNAKES EXIST
WHY DO OYSTERS HAVE PEARLS
WHY ARE DUCKS CALLED DUCKS
WHY DO THEY CALL IT THE CLAP
WHY ARE KYLE AND CARTMAN FRIENDS
WHY IS THERE AN ARROW ON AANG'S HEAD
WHY ARE TEXT MESSAGES BLUE
WHY ARE THERE MUSTACHES ON CLOTHES
WHY ARE THERE MUSTACHES ON CARS
WHY ARE THERE MUSTACHES EVERYWHERE
WHY ARE THERE SO MANY BIRDS IN OHIO
WHY IS THERE SO MUCH RAIN IN OHIO
WHY IS OHIO WEATHER SO WEIRD
WHY ARE THERE MALE AND FEMALE BIKES
WHY ARE THERE BRIDESMAIDS
WHY DO DYING PEOPLE REACH UP
WHY AREN'T THERE VARICOSE ARTERIES
WHY ARE OLD KLINGONS DIFFERENT
WHY AREN'T DINOSAUR GHOSTS
WHY DO TESTICLES MOVE
WHY ARE THERE PSYCHICS
WHY ARE HATS SO EXPENSIVE
WHY IS THERE CAFFEINE IN MY SHAMPOO
WHY DO YOUR BOOBS HURT
WHY ARE THERE SLAVES IN THE BIBLE
WHY DO TWINS HAVE DIFFERENT FINGERPRINTS
WHY ARE AMERICANS AFRAID OF DRAGONS
WHY DO IGUANAS DIE
WHY IS HTTPS CROSSED OUT IN RED
WHY IS THERE A LINE THROUGH HTTPS
WHY IS THERE A RED LINE THROUGH HTTPS ON FACEBOOK
WHY IS YKK ON ALL ZIPPERS
WHY IS HTTPS IMPORTANT
WHY AREN'T MY ARMS GROWING
WHY ARE THERE WEEKS
WHY DO I FEEL DIZZY
WHY AREN'T ECONOMISTS RICH
WHY DO AMERICANS CALL IT SOCCER
WHY ARE MY EARS RINGING
WHY ARE THERE SO MANY AVENGERS
WHY ARE THE AVENGERS FIGHTING THE X MEN
WHY IS WOLVERINE NOT IN THE AVENGERS
WHY ARE THERE SWARMS OF GNATS
WHY IS THERE PHLEGM
WHY ARE THERE SO MANY CROWS IN ROCHESTER, MN
WHY IS PSYCHIC WEAK TO BUG
WHY DO CHILDREN GET CANCER
WHY IS POSEIDON ANGRY WITH ODYSSEUS
WHY IS THERE ICE IN SPACE
WHY IS THERE LAVA
WHY ARE THERE ANTS IN MY LAPTOP
WHY ARE DOGS AFRAID OF FIREWORKS
WHY IS THERE NO KING IN ENGLAND
WHY IS EARTH TILTED
WHY IS SPACE BLACK
WHY IS OUTER SPACE SO COLD
WHY ARE THERE PYRAMIDS ON THE MOON
WHY IS NASA SHUTTING DOWN
WHY ARE THERE GHOSTS
WHY IS THERE AN OWL IN MY BACKYARD
WHY IS THERE AN OWL OUTSIDE MY WINDOW
WHY IS THERE AN OWL ON THE DOLLAR BILL
WHY DO OWLS ATTACK PEOPLE
WHY ARE AK 47s SO EXPENSIVE
WHY ARE THERE HELICOPTERS CIRCLING MY HOUSE
WHY ARE THERE GODS
WHY ARE THERE TWO SPOOKS
WHY ARE MY BOOBS ITCHY
WHY ARE CIGARETTES LEGAL
WHY ARE THERE DUCKS IN MY POOL
WHY IS JESUS WHITE
WHY IS THERE LIQUID IN MY EAR
WHY DO Q TIPS FEEL GOOD
WHY DO GOOD PEOPLE DIE
WHY ARE THERE TINY SPIDERS IN MY HOUSE
WHY DO SPIDERS COME INSIDE
WHY ARE THERE HUGE SPIDERS IN MY HOUSE
WHY ARE THERE LOTS OF SPIDERS IN MY HOUSE
WHY ARE THERE SPIDERS IN MY ROOM
WHY ARE THERE SO MANY SPIDERS IN MY ROOM
WHY DO SPIDER BITES ITCH
WHY IS DYING SO SCARY
WHY ARE THERE SQUIRRELS
WHY IS THERE HELL IF GOD FORGIVES
WHY IS PROGRAMMING SO HARD
WHY IS THERE A 0 OHM RESISTOR
WHY DO AMERICANS HATE SOCCER
WHY DO RHYMES SOUND GOOD
WHY DO TREES DIE
WHY IS THERE NO SOUND ON ONN
WHY AREN'T POKEMON REAL
WHY AREN'T BULLETS SHARP
WHY DO DREAMS SEEM SO REAL
WHY IS THERE NO GPS IN LAPTOPS
WHY DO KNEES CLICK
WHY AREN'T THERE E GRADES
WHY IS ISOLATION BAD
WHY DO BOYS LIKE ME
WHY DON'T BOYS LIKE ME
WHY IS THERE ALWAYS A JAVA UPDATE
WHY ARE THERE RED DOTS ON MY THIGHS
WHY IS LYING GOOD
WHY IS SEX SO IMPORTANT
WHY IS GPS FREE
WHY IS MT VESUVIUS THERE
WHY DO THEY SAY T MINUS
WHY ARE THERE OBELISKS
WHY ARE WRESTLERS ALWAYS WET
WHY ARE OCEANS BECOMING MORE ACIDIC
WHY IS ARWEN DYING
WHY AREN'T MY QUAIL LAYING EGGS
WHY AREN'T MY QUAIL EGGS HATCHING
WHY AREN'T THERE ANY FOREIGN MILITARY BASES IN AMERICA
WHY IS LIFE SO BORING
WHY AREN'T THERE GUNS IN HARRY POTTER
WHY ARE ULTRASOUNDS IMPORTANT
WHY ARE ULTRASOUND MACHINES EXPENSIVE
WHY IS STEALING WRONG
WHY ARE THERE FEMALE MR MIMES