QLectives:
Socially Intelligent Systems for Quality Collectives

A Future and Emerging Technologies Integrated Project
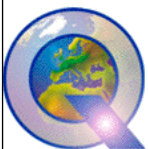
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Overview

- High-level scientific / tech goals
- Project structure and terminology
- "Stream" level overview of objectives
- Initial progress in the project since March

The basic idea

- If we give people the right tools they will self-organise into communities that support their needs

- A common need is to find high quality content for entertainment or professional activities

- We believe communities can be grown around the creation, distribution and recommendation of quality content in given domains

- We aim to implement tools that are fully distributed requiring no central control or authority (QMedia and QScience)

The basic idea

In the proposal we said:

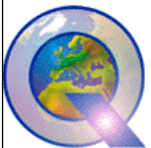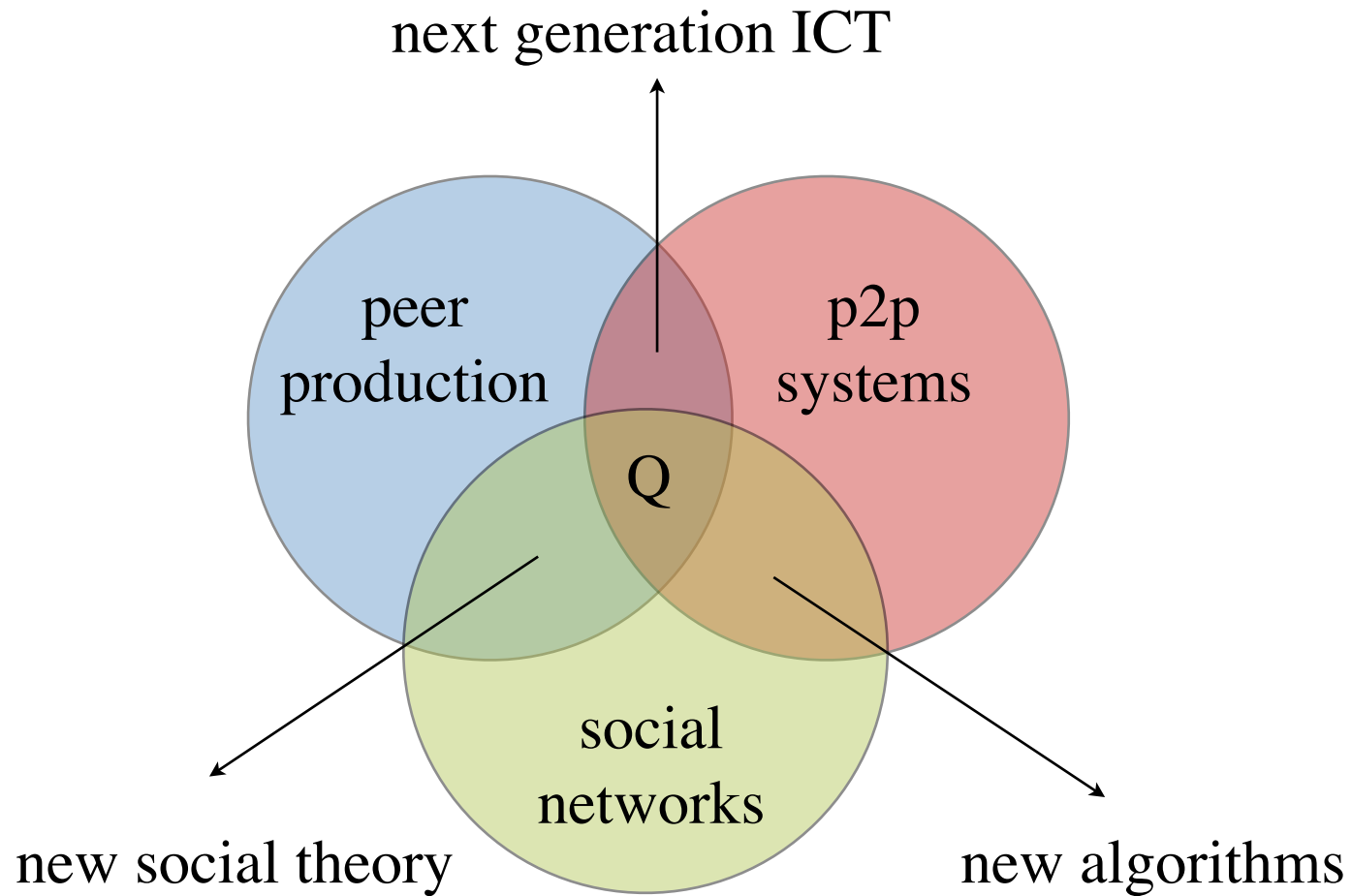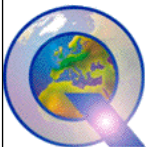"QLectives can be defined as cohesive and cooperative resource sharing communities directed towards the peer production of commonly defined high quality artifacts, services and experiences."

The basic idea

How do we do it?

model refinement

algorithm refinement

empirical analysis

data-sets collection

Stream 1: Theoretical & algorithmic foundations

Stream 2: Algorithm design, simulation and evaluation

Stream 3: Empirical data-sets collection, processing and validation

Stream 4: QLectives platform and living lab implementation

models & hypotheses

algorithms & simulations

empirical focus

implementation & deployment

QScience living lab

QMedia living lab

Inter-disciplinarity

Complex systems science:
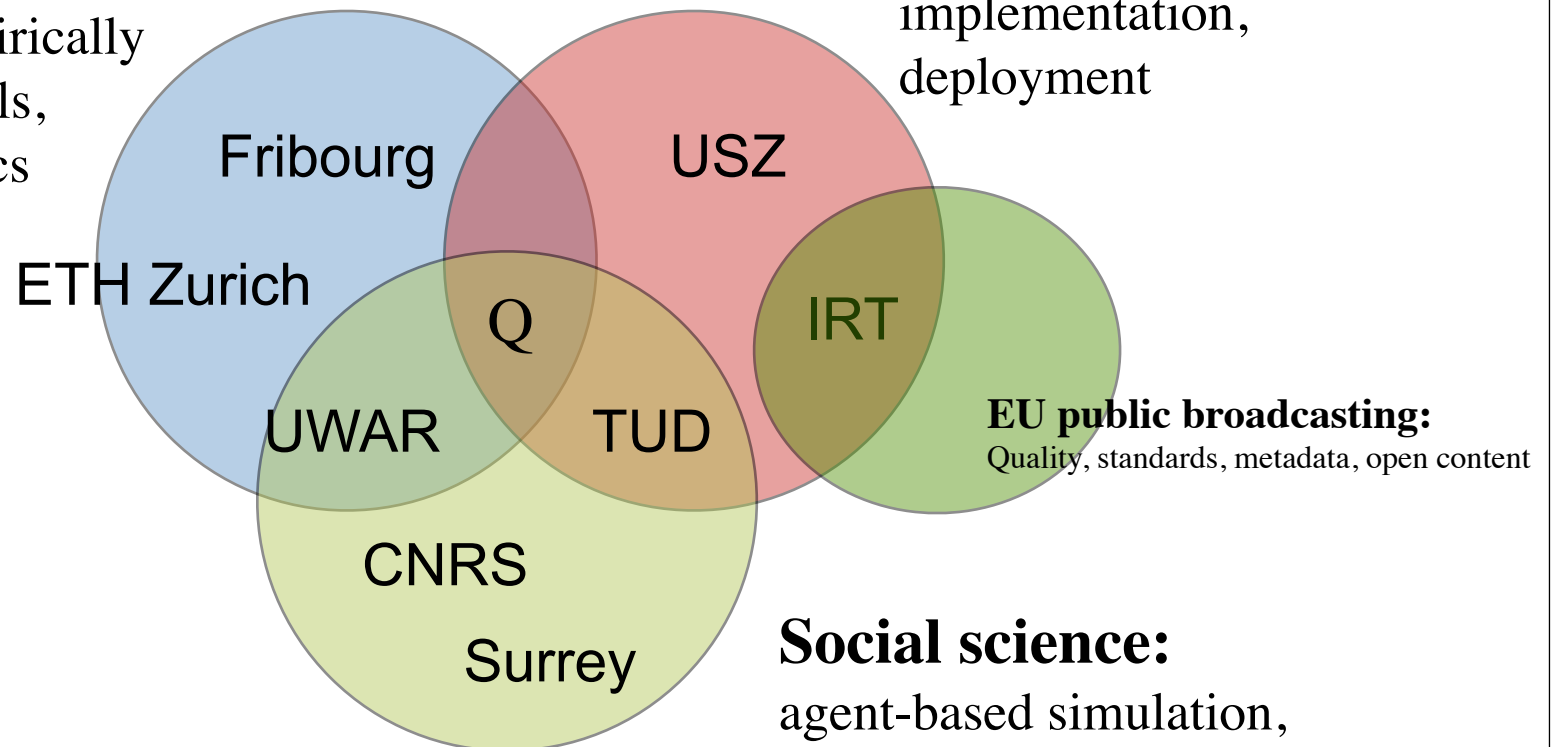theory, empirically based models, econophysics

Self-organising ICT:
p2p, simulation, implementation, deployment

Fribourg

USZ

ETH Zurich

Q

IRT

UWAR

TUD

EU public broadcasting:
Quality, standards, metadata, open content

CNRS

Surrey

Social science:
agent-based simulation, social psychology, social complexity
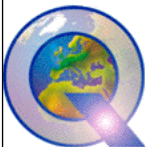
The inter-disciplinary thing

In the proposal we said:

"It is the collective experience of the consortium that it is not sufficient simply to put together partners with complementary expertise and some shared goals. It is necessary to structure the work plan carefully such that the sequence of milestones and deliverables clearly indicates the specific ways that partners will support each other."
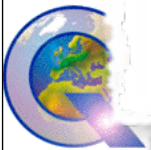
Stream overviews

The following slides give a brief stream level overview of the project
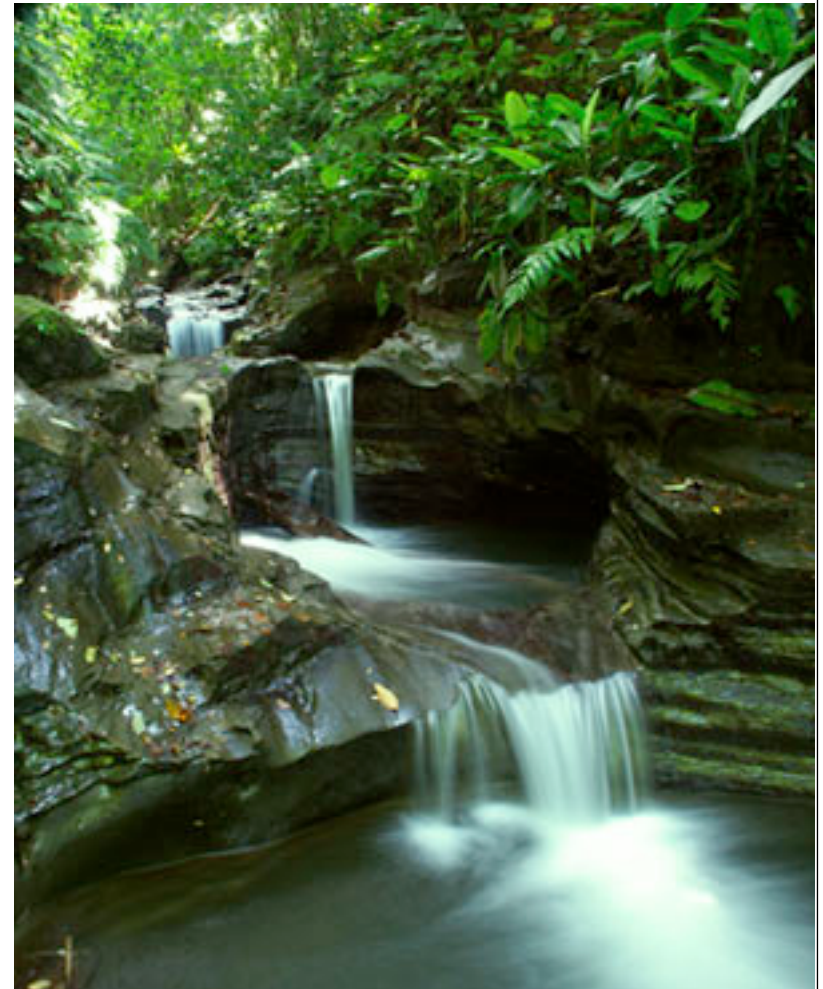
Stream 4: Living Labs

- Deploy and maintain ICT infrastructure supporting the QScience and QMedia living labs

- Rapidly deploy new algorithms and protocols based on proposals from Stream 1 and Stream 2

- Provide data collection functions in order to support the empirical analysis in Stream 3

- Produce generic platform protocols and algorithms applicable to a wide range of specific applications

Stream 3: Empirical

- Enhance the understanding of the interplay between key elements of quality emergence in P2P and social networking systems (like trust, reputation, cooperation or social structure).

- Validate and improve theoretical models by matching simulation results with empirical data.

- Extend the available methodology for social datasets analysis and model validation, by proposing innovative measurements, algorithms and quality indicators.

- Archive and share (for scientific purposes) datasets obtained from P2P and social networking activities.

Stream 2: Algorithms

- Formulate algorithm designs based on insights from Stream 1

- Implement large-scale simulations of algorithms employing human behaviour models

- Design algorithms that capture desirable emergent properties of complex system models

- Focus on efficient maintenance of cooperative group formation and trust/reputation networks

Stream 1: Theory

- Specify complexity related models of human agent behavior

- Model the emergence of trust and cooperation between agents

- Model community formation in complex networks

- Study the dynamics of scientific communities

Empirical cycle

- Important for structuring partner collaboration and communication

- For first year review we will need to demonstrate the cycle is working properly

- We are now in the Batch 0 phase
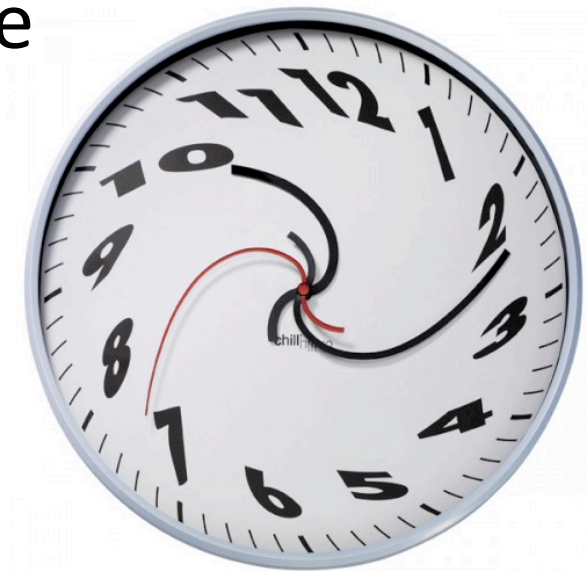
Empirical cycle

Project Months

| | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 36 | 39 | 42 | 45 | 48 |

Empirical cycle component tasks:

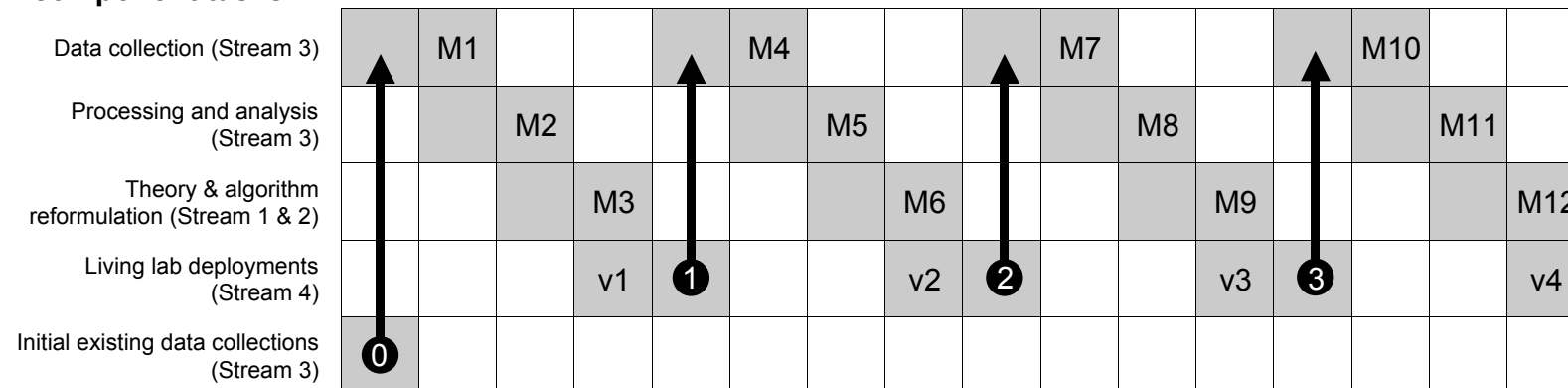| Task																
Data collection (Stream 3)		M1				M4			M7				M10			
Processing and analysis (Stream 3)			M2				M5				M8			M11		
Theory & algorithm reformulation (Stream 1 & 2)				M3				M6				M9				M12
Living lab deployments (Stream 4)				v1	①			v2	②			v3	③			v4
Initial existing data collections (Stream 3)	⓪															

M no.	Milestone name	WPs no's	Lead beneficiary	Expected date	Comments
M1	Completion of data collection (batch 0)	WP3.1, WP3.2	ETH Zurich	Month 6	Data available for processing
M2	Completion of data processing and analysis (batch 0)	WP3.2, WP3.3	UWAR	Month 9	Processed and analysed data passed to Stream 1 and 2
M3	Theory and algorithm reformulation (batch 0)	All WP's in Stream 1 and 2	UniS	Month 12	New hypotheses and algorithm designs passed to Stream 4
M4	Completion of data collection (batch 1)	WP3.1, WP4.2, WP4.3	ETH Zurich	Month 18	Data available for processing

Current Work – Stream 1

- On-going review of existing cooperation producing models
  - Group selection
  - Indirect Reciprocity
  - Migration etc.
- Survey of motives for scientific collaboration
  - Reviewer incentives
  - Social psychological experiments on the emergence of quality definitions
  - Review of state-of-art of scientific "collaboratories"

Current Work - Stream 2

- Identifying models from stream 1 for use in living-lab application domains
  - QMedia – increased cooperative media sharing
  - QScience – ranking and rating mechanisms for papers and reviewers (rating the raters)
- Formulating domain constraints for our two applications
  - User model / protocol division

Current Work - Stream 3

- Standard data format created
- Batch 0 datasets selected for archive
  - Filelist.org (P2P)
  - Slacer group selection model graph (Cooperative evolving graphs)
  - Flickr (group formation dynamics)

Current Work – Stream 4

- QMedia - distributed media sharing and social functions (built on tribler p2p system)
  - Prototype distributed social networking and p2p-widgets (towards version 1)
- QScience – scientific collaboration platform (built on Econophysics forum)
  - Sketch of future development plan
  - On-going enhancements to the Forum (towards version 1)

On-going collaboration

- High level of inter-partner interactions (during our first 6 months!):
  - 2 project wide meetings
  - 3 stream meetings
  - 5 WP level visits
- Active wiki + skype discussions (important during this early stage of the project)

Links beyond the project

 P2P-Next (FP7, ICT, IP)

 LiquidPub (FP7, FET, STREP)

Questions?

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