Professur Gersch
Department Information Systems
School of Business and Economics

1st iteration

1 Identify aims and strategies
2 Assess current state
3 Define desired state
4 Set indicators for critical activities
5 Collect and analyze data
6 Derive implications for the learning scenario

2nd iteration

Uncovering Unexpected Actors in an Educational Service Ecosystem

Dr. Hannes Rothe

Prof. Dr. Martin Gersch

Folien unter: www.svc-engineering.com/esic-wkdlm.pdf

(1) Background
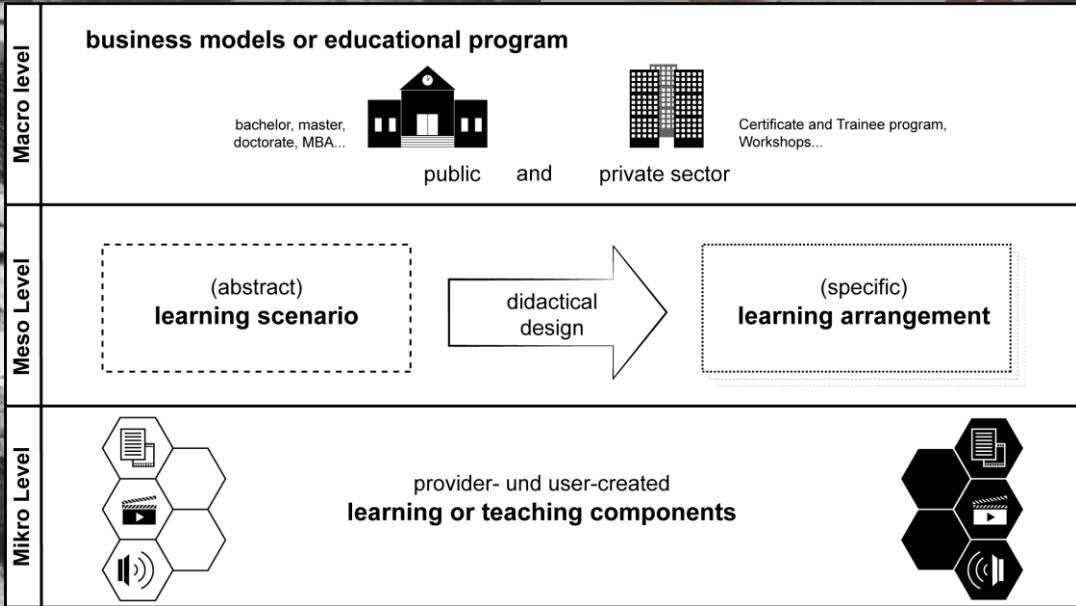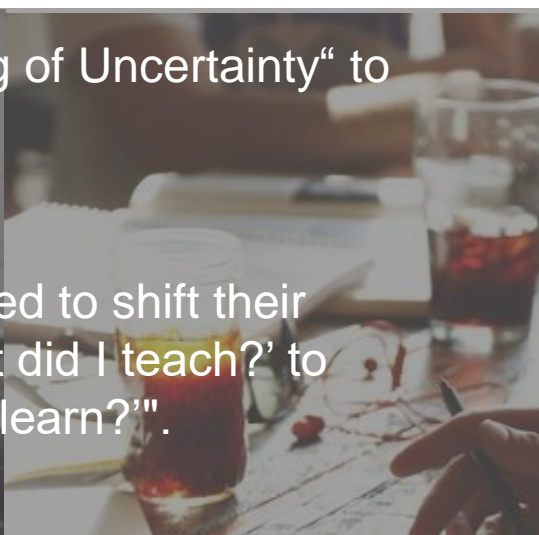## Systematic Development of Educational Services

We need to lift the „Fog of Uncertainty" to improve teaching.
(Siemens und Long, 2011)

"[F]aculty members need to shift their perspective from 'What did I teach?' to 'What did my students learn?'".
(Bradforth et al.,2015)

Macro level

business models or educational program

bachelor, master, doctorate, MBA...

public   and   private sector

Certificate and Trainee program, Workshops...

Meso Level

(abstract) **learning scenario**   didactical design   (specific) **learning arrangement**

Mikro Level

provider- und user-created **learning or teaching components**

Ref.: Gersch/Weber (2007), Weber (2008), Fink et al. (2013), Siemens/Long (2011), Bradforth et al. (2015), Rothe (2016)   **BildRef.**: New Old Stock; Startupstockphotos

(1) Background
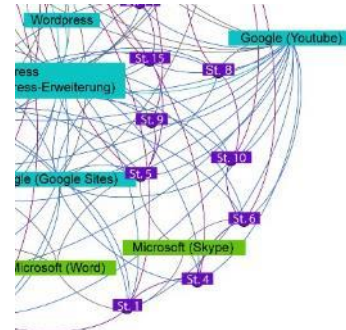## (Didactical) assumptions with regards to direct and indirect interactions

Following sd-logic, usage is defined as mutual resource integration – it is therefore interactive.

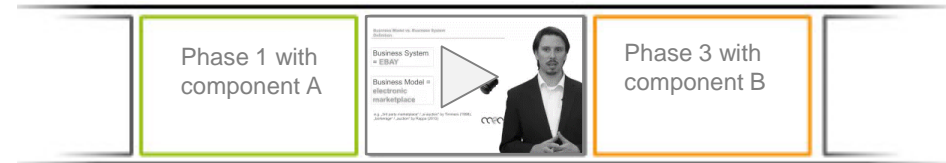(Didactical assumptions) with regards to the Value-in-Use
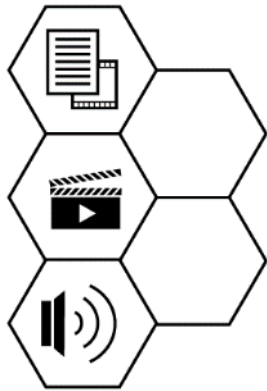
Direct interaction between an educational service provider and a learner, or between learners

Learning Arrangement A

Phase 1 with component A

Phase 3 with component B

Indirect interactions between actors, e.g. mediated through teaching and learning material

e.g., Instructionalism

e.g., Constructivism

e.g., Connectivism

Ref.: Knight et al. (2013), Lehr (2011), Webb et al (2004), Grönroos (2011), Agudo-Peregrina et al (2014), Lusch/Vargo (2014), Rothe (2016)   **BildRef.**: Rothe 2015 | Youtube, Hobvias sudoneigh 2006 | Flickr, eigene Darstellungen

Looking for unexpected actors in the „fog of utiliziation"

1) Many activities of a learning process are hidden.

2) Technology creates data points and allow for a deeper look into the learning process.

Blackboard

Atlassian Confluence

coursera

edX

Fog of utilization
Only guesses about actual usage

customer activities

No influence, but access to usage data

Usage can be influenced by provider

provider contact

Direct interaction between provider/customer

3) Analytical procedures (Learning Analytics) may return recommendations and evaluatons of interventions in educational services.
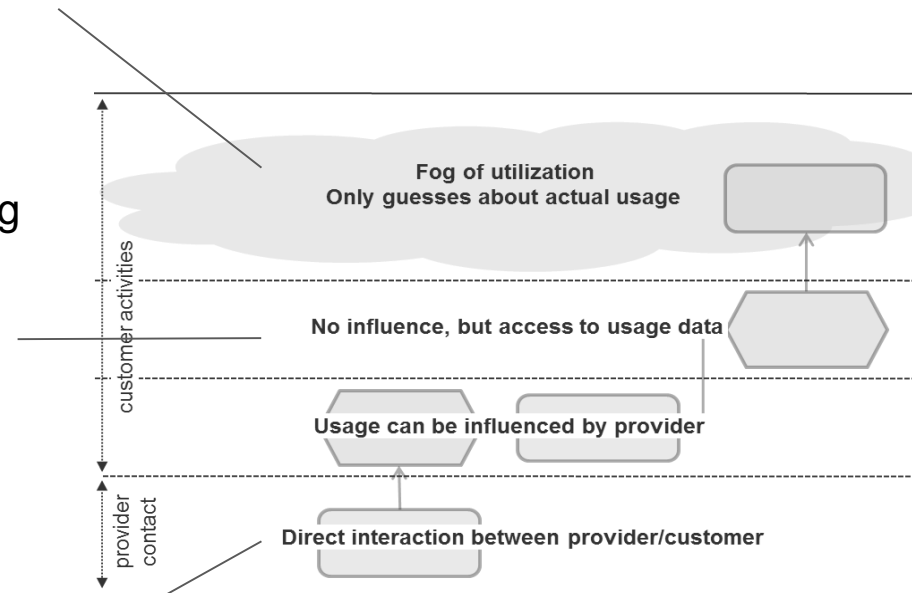
Research Question: *How do resource-integrating users autonomously – and therefore unexpectedly – integrate actors into value co-creation processes?*

(1) Background
Data points for revealing the „fog of utiliziation"
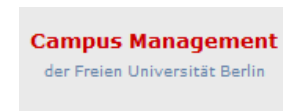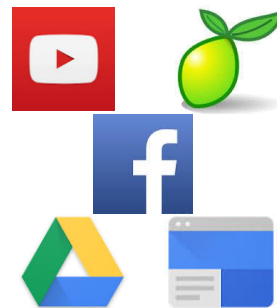
client sided data collection

server sided data collection

User / Student

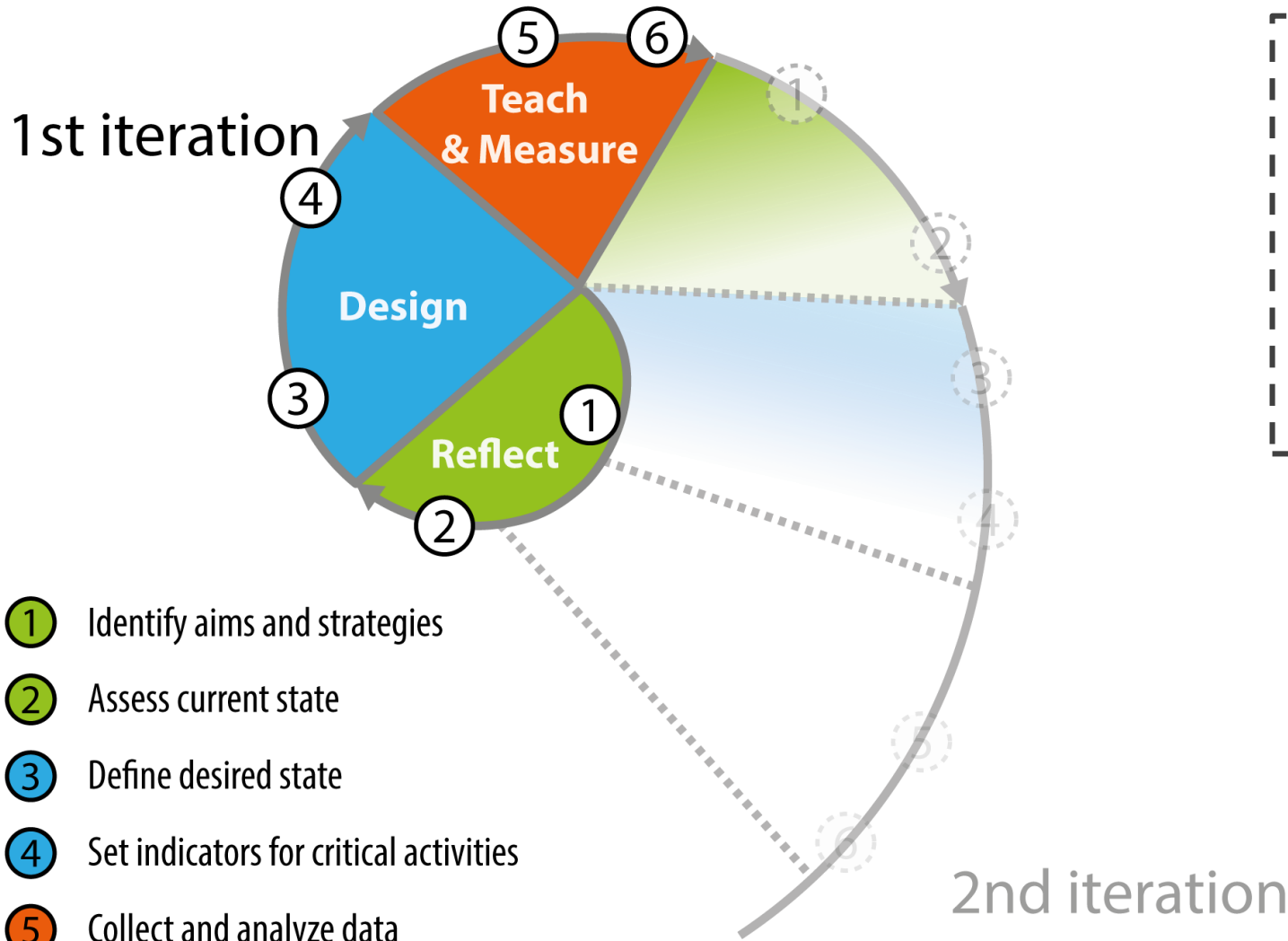*Other component providers*

Focal educational service provider

Javscript / Browser Extensions …

Via public APIs oder manually shared data of related services…

Student Information Systems, ERP, Webserver …

(2) Method
Educational Service Improvement Cycle (ESIC)

1st iteration

2nd iteration

ESIC Owner

ESIC Process Manager

Learning Analyst

Others

External Service Owner   Internal Staff

BildRef.: cc by Gregor Črešnar | TheNounProject

1. Identify aims and strategies
2. Assess current state
3. Define desired state
4. Set indicators for critical activities
5. Collect and analyze data
6. Derive implications for the learning scenario
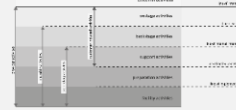
Ref. Rothe (2016)

(2) Method
ESIC in detail

① Identify aims and strategies

Measures of (learning) success (e.g., competence framework of EQR/DQR) as a basis for didactical assumptions and interventions.
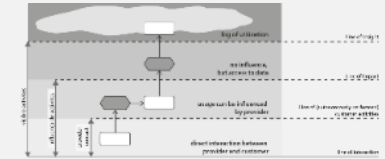
② Assess current state

Process model of didactical assumptions, using the enhanced Business Process Blueprinting (BP²)

③ Define desired state

Process Reengineering (e.g., internalization or externalization) using the enhanced BP²



④ Set indicators for critical activities

Choose KPI as well as target span considering external conditions (privacy, data security, copyright etc.)

| Ziel	Indikator	Metrik	Zielspan-ne	Akti-vität
(Fachkenntnisse erwerben), Fachkompetenz steigern	Über Website vermittelte Lehrinhalte (z.B. Aufgabenstellung, kurze Texte etc.) werden von Studierenden individuell aufgenommen (passive Interaktion)	Individuell verbrachte Zeit auf den Inhaltsseiten	> 2 Minuten pro Seite	(a)
(Fachkenntnisse erwerben), Fachkompetenz steigern	Über Videos vermittelte Lehrinhalte werden von Studierenden individuell aufgenommen (passive Interaktion)	Mittlerer, individueller Anteil der betrachteten Zeit eines E-Lectures	> 80%	(a)
(Fachkenntnisse erwerben), Fachkompetenz steigern	Interaktionsintensität zur Gruppenarbeit auf Google Sites	Pro Gruppe verbrachte Zeit auf der gruppenspezifischen Google Site	> 12 Stunden	(a)
Soziale Kompetenz steigern	Intensität der jeweiligen n:c-Interaktion in der n:c:n-Interaktionskette des VSN	Individuell verbrachte Zeit auf Seiten mit n:n-Interaktion	> 10 Minuten	(b)
Soziale Kompetenz steigern	Ausmaß der (aktiven) n:n-Interaktion in den Lernszenariophasen	Mittlerer "Total Degree" (Indegree + Outdegree) pro Phase	> 5	(b)
Soziale Kompetenz steigern	Ausmaß (passiver) n:n-Interaktion zur Vorbereitung eigener Beiträge	Anteil vollständig gesehener Beiträge anderer Lernender, die vor eigenem Beitrag erstellt wurden	> 0 %	(c)
Soziale Kompetenz steigern	Ausmaß (passiver) n:n-Interaktion zur Nachbereitung eigener Beiträge	Anteil vollständig gesehener Beiträge anderer Lernender, die nach eigenem Beitrag erstellt wurden	> 0 %	(c)

⑤ Collect and analyze data

Assess and evaluate data of within the educational service ecosystem.
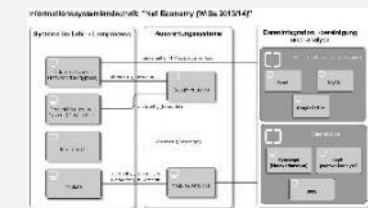
⑥ Derive implications for the learning scenario

Contrast (learning) success measures on the learning arrangement level with usage data of the components.
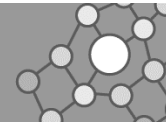

Ref. Rothe (2016)
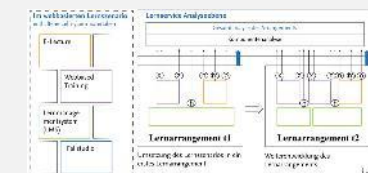
(3) Case Study
Net Economy – a cross-institutional learning scenario

2012 / 2013		Net Economy	2013 / 2014	

	Students			Students
Technische Universität Dresden	11		Technische Universität Clausthal	3
Ruhr-Universität Bochum	29		Ruhr-Universität Bochum	13
Swiss German University Jakarta	49		Swiss German University Jakarta	28
Freie Universität Berlin	5		Crimean Economic Institute of KNEU	20
Fachhochschule Südwestphalen	25		Freie Universität Berlin	8
Hochschule Ruhr-West	5		Fachhochschule Südwestphalen	55
			Hochschule Ruhr-West	13
Summe	**124**		**Summe**	**140**
Teams	**25** (2 dissipated)		**Teams**	**23** (2 dissipated)

Students
Int'l Student Teams
max. 6 students

Preparation Phase	Knowledge Development Phase	Case Study Phase
Introduction to the Social Network Service and initiation of team building	Creation of a knowledge base about E-Ventures	Use of theoretical knowledge and Business Model Canvas in a practical case

Podcasts · Social Networks · Wikis · Social Bookmarks · Blogs · Tag Clouds · Rich Media Communication · Syndication

time

- [O] E-Electures
- [C] Classroom Presentation (int'l Online-Meeting)
- [green] Online Phase (group work phase)

Six teams finished their entire case study on a single day

Legend: ■ -19 to -11 days ■ -10 to -6 days ■ -5 days ■ -4 days ■ -3 days ■ -2 days ■ -1 day ■ last day

RELATIVE WORKSHARE ON THE GOOGLE DOCUMENT PER PERIOD
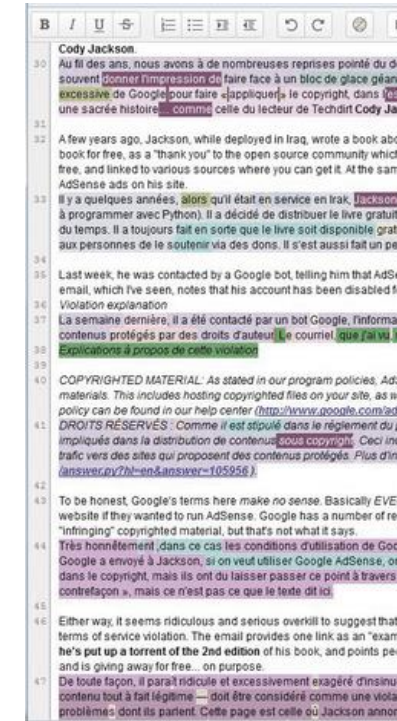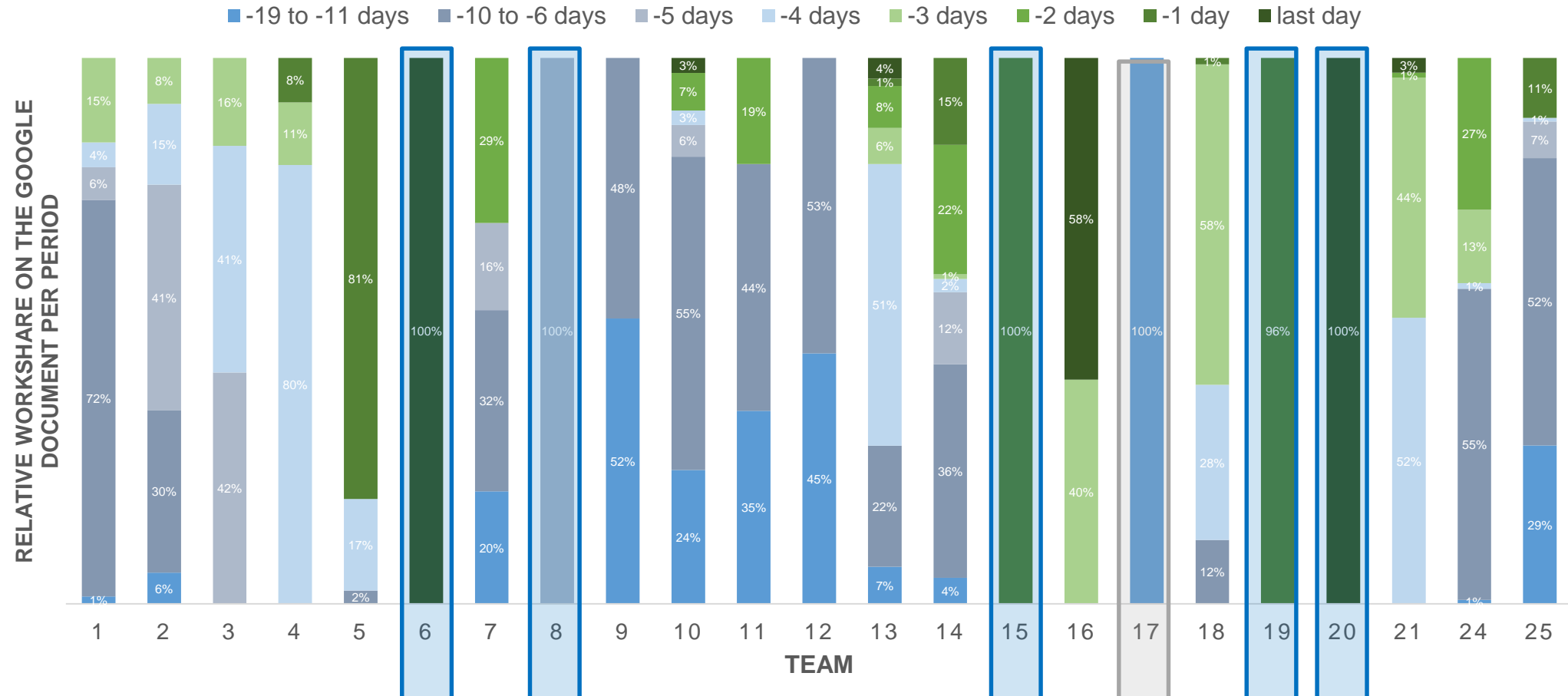
TEAM

In five teams the whole document was copy and pasted;
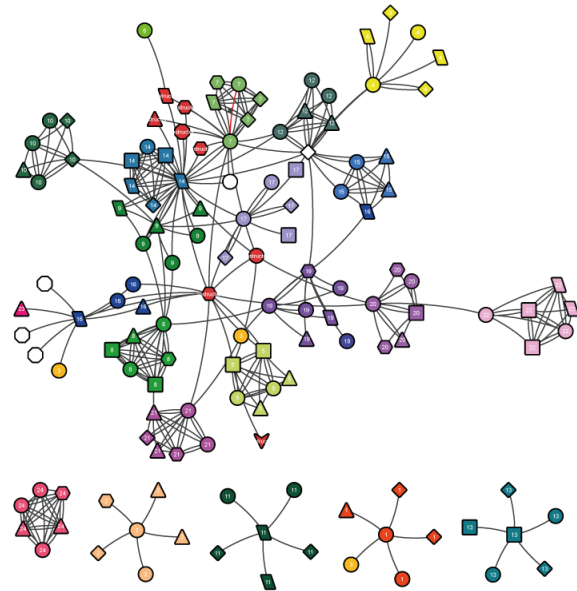Students used Word for asynchronously resource integration

Intensive communication between students on our virtual social network throughout 1st and 2nd phase; severerely reduced in 3rd phase
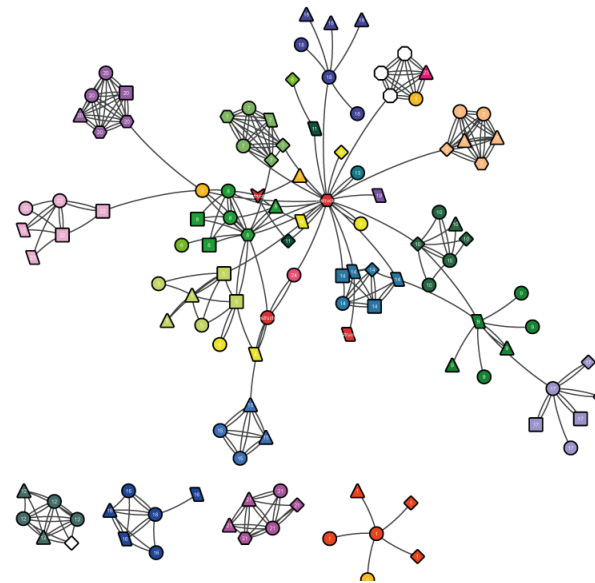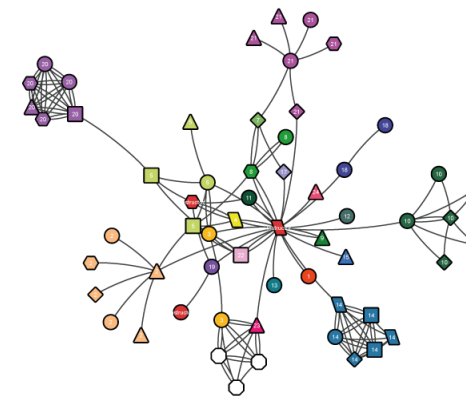
Net Economy
2013 / 2014

Preparation Phase

Knowledge Development Phase
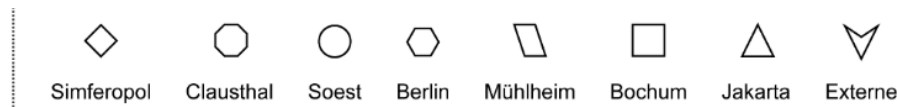
Case Study Phase

Symbols

Colors and Numbers: Groups

Simferopol | Clausthal | Soest | Berlin | Mühlheim | Bochum | Jakarta | Externe

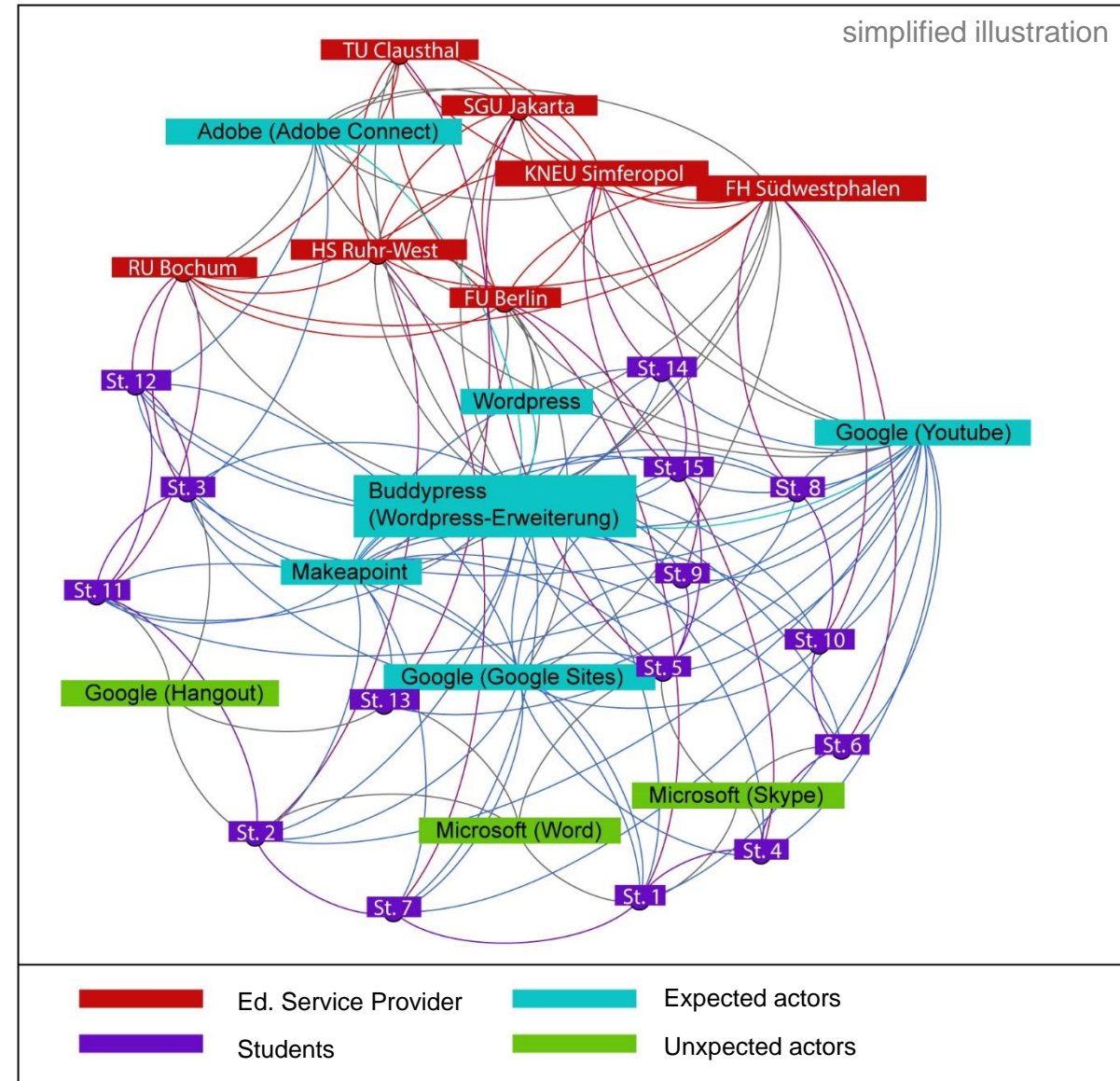Most teams used Google Hangout or MS Skype for synchronous interaction.

Ref. Rothe (2016)

Users solved issues by integrating unexpectated actors

Service Ecosystems are „relatively self-contained, self-adjusting systems of resource-integrating actors that are connected by shared institutional logics and mutual value creation through service exchange"
(Lusch / Vargo, 2014, S. 161)

1. The Educational Service Improvement Cycle enables to contrast expected with actual usage for key activities.

2. Revealing usage processes may unveal unxpected actors.

3. Students integrated further actors to solve issues with provided ways of resource integration.
   (alternatives for synchronous or asynchronous interaction)

simplified illustration

Legend:
- Ed. Service Provider (red)
- Students (purple)
- Expected actors (cyan)
- Unxpected actors (green)

Vielen Dank für Ihre Aufmerksamkeit!

Dr. Hannes Rothe & Prof. Dr. Martin Gersch

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http://www.fu-berlin.de/sites/profund/qualifizierung/ und http://www.fu-berlin.de/dynage

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