FACULTY OF BEHAVIORAL, MANAGEMENT, AND SOCIAL SCIENCES
DEPARTMENT OF INDUSTRIAL ENGINEERING & BUSINESS INFORMATION SYSTEMS

UNIVERSITY OF TWENTE.

MEDIA CHOICE IN THE DIGITAL ERA

REPLICATION STUDY USING DIGITAL TRACES

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THE **PERIODIC TABLE** OF
Office 365

jumpto365

Dynamics 365
CRM & ERP
[Salesforce]

Sway
Next-gen presentations

PRESENTATIONS

MICROSOFT 365 GROUPS

EMPLOYEE DATA & DISCOVERY

LISTS			BRAINSTORMING & NOTE TAKING						OUTLOOK GROUPS
Lists Database power, spreadsheet usability	**Stream** Video portal [YouTube]	**MyAnalytics** Personal metrics & self-improvement		**Whiteboard** Brainstorming & note taking	**OneNote Online** Note taking in the browser [Evernote]	**Excel Online** Spreadsheets in the browser	**Word Online** Word processing in the browser	**PowerPoint Online** Presentations in the browser	**Outlook Groups** Central email & calendar plus the rest

OFFICE ONLINE

FILE STORAGE & COLLABORATION			FORMS					POWER PLATFORM	TEAMS
SharePoint Online Team file sharing & storage	**OneDrive for Business** Personal file storage [Dropbox]	**Delve** Employee profile & content discovery	**Forms** Simple forms & polls [Survey Monkey]	**Power Apps** Code-free mobile apps (& forms)	**Power Virtual Agents** Preview Low-code customer service chatbots [AtBot]	**Power Automate** Code-free workflows [IFTTT]	**Power BI** Business analytics & dashboards	**Teams Teams** Central chat & wiki plus the rest	

OUTLOOK				TASK MANAGEMENT		PROJECT MANAGEMENT		YAMMER COMMUNITIES
Mail Outlook email	**Calendar** Outlook calendar	**People** Outlook contact list	**Tasks** Outlook tasks	**To Do** To-do list for life & work [Wunderlist]	**Planner** Everyday project management [Trello]	**Project Online** Premium project management	**Office Lens** Mobile scanning & image cleanup	**Yammer Communities** Central newsfeed plus the rest

CHAT & CONFERENCING				SOCIAL NETWORKING & MESSAGING				SMALL BUSINESS APPLICATIONS
Skype for Business Instant messaging & video chat [Skype]	**Teams** Chat, meetings, & files in one place [Slack]	**Kaizala** Deprecating Large-scale comms [WhatsApp]	**Yammer** Enterprise social network [Facebook]	**Recipes by jumpto365** Pre-built Power Platform solutions	**Visio Online** Diagramming in the browser	**Bookings** Customer self-reservations	**StaffHub** Deprecating Frontline employee hub & scheduler	

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ABOUT ME

Dr. Joschka Hüllmann

Assistant Professor at University of Twente (NL)

Research Topics:

– Future of Work with new Technologies

– People Analytics and Algorithmic Management

– Analysis of Digital Traces

– Social Process Mining

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AGENDA

1. Motivation
2. About Replications & Media Choice
3. Methods: Digital Traces
4. Findings
5. Discussion

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INTRODUCTION

- Why media choice?
  - *Managers* provide right tools.
  - *Individuals* choose right medium for **effective media use**.
  (example of good/bad choice)

- Media choice theory is old!
  - New technologies and communication media.
  - Changes in collaboration modes (e.g., COVID, WFH).
  - Beyond „Face2face, phone, email", we must choose from digital tools!

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REPLICATION

Replications:
1. Increase **robustness** of scientific findings.
2. **Extend** and **clarify** original theory.

Types:
1. Exact
2. Methodological
3. Conceptual → for established theory.

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DIGITAL TRACES

Digital Traces are **event log** data of **routine** communication and collaboration systems **use**.

1. Hype topic that fuels computational studies (e.g., Miranda et al. 2022).
2. Logs of Microsoft 365 for media use.

→ Complete history and accurate account of tool use

(more accurate than self-reported data for past behaviours)

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MEDIA CHOICE

Rational and collective choice models
- objectively best fit vs. social perceptions of fit
- e.g., Daft & Lengel 1986; Fulk 1993

Single medium and media collection models
- e.g., Watson-Manheim and Belanger 2007

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MEDIA CHOICE

Theorized Antecedents:
- Social influence (**Coworkers**, **supervisors**)
- **Physical location**
- Perceived fit (not in our data)
- Experience

Media collection types:
- **Information-sharing**
- Relationship-building

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MEDIA CHOICE

<u>Modern work is different!</u>

(old studies used mostly survey and interviews)

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METHODS: DIGITAL TRACES

European part of Global IT services provider (>30,000 employees)

  18 locations

  813 workers

  8 months of trace data

  >1,000,000 traces

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METHODS: DIGITAL TRACES

1. Identify media collections:
    - Ward's hierarchical clustering and „elbow method"

2. Estimate effect of hypothesized antecedents:
    - Nominal data with high number of factors
    → Simple regression not feasible
    → Comparison with Cramer's V
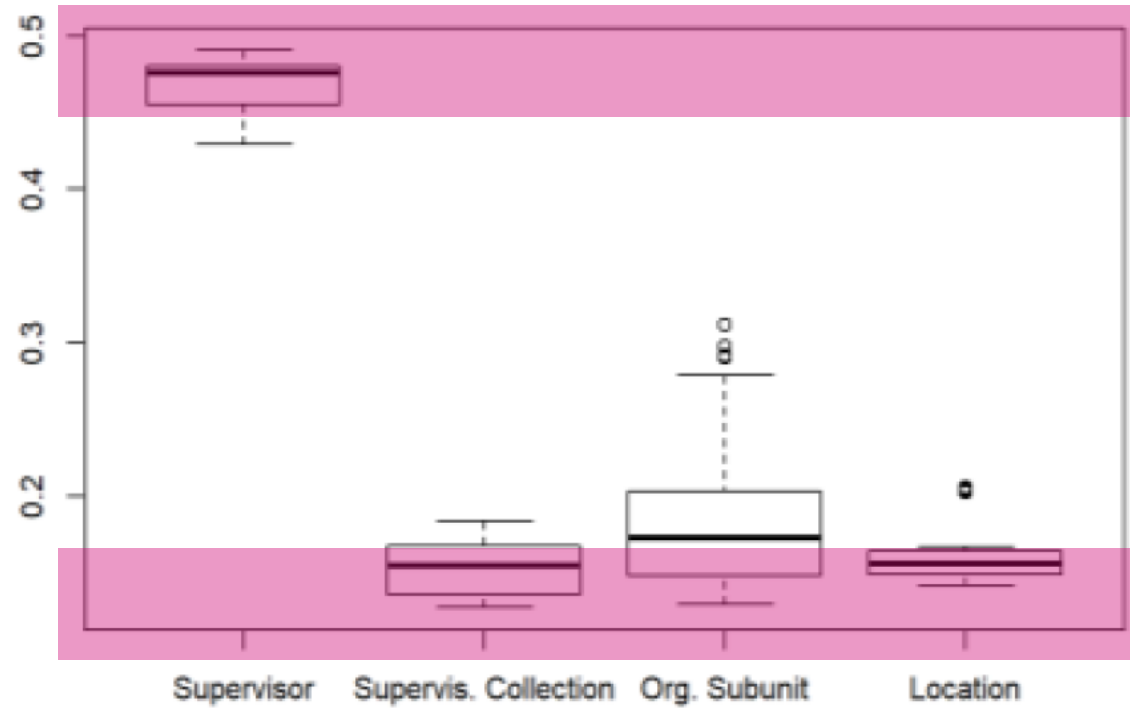
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FINDINGS

Figure 1: Cramer's V correlations.

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FINDINGS

Media Collection	Purpose			Min.	Median	Max.
Exchange	Information Sharing			64	262	498
Exchange, OneDrive	Information Sharing			13	106	148
Exchange, SharePoint	Information Sharing			33	96	134
Exchange, SharePoint, OneDrive	Information Sharing			31	88	106
Exchange, SharePoint, OneDrive, Yammer	Both			6	87	316
Exchange, SharePoint, Yammer	Both			6	46	116
All	Both			3	12	46
Others	–			35	76	108

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DISCUSSION

1. Email is still a key technology.
2. Information-sharing is technologies are important.
3. Smaller collections are favoured.
4. Supervisor and location hypotheses supported.
5. Coworkers' influence not supported.

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LIMITATIONS & FUTURE WORK

1. Weak operationlization due to high aggregation.
2. Tasks structures not analysed.
3. How coworkers influence choice remains unanswered.
4. Context from media use missing.
5. Shadow IT and other tools may bias results.
6. Consumed amount of time per action differs.

7. Enterprise social network data can elucidate social influence.
8. Longitunal studies are promising.

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CONCLUSION AND NEXT STEPS

<u>Media choice theory remains valid in the digital era!</u>

Next Steps
1. Collect non-aggregated data.
2. Implement process-theoretical approach.
3. Triangulate results with interviews and field observations.
4. Address privacy concerns.

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