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AN E-FINANCE LAB PUBLICATION

10 years efinancelab

at the HOUSE OF FINANCE

Special Issue Celebrating the E-Finance Lab 10th Anniversary

10 Years of Providing Solutions
for the Financial Sector

Current Research Topics in E-Finance
Research Reports Presented by
E-Finance Lab Alumni

E-Finance Lab:
Beginning and Growth



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Special Issue Celebrating the 10th Anniversary of the E-Finance Lab

Since 2003, the E-Finance Lab strives to develop and apply research methodologies in the financial industry that promote and assess how business strategies and structures are shared and supported by strategies and structures of information systems.

By publishing more than 1,200 research papers and running numerous projects together with our industry partners, the E-Finance Lab achieved to build up a reputation for research excellence and relevance for real-world problems. Behind it all are people who have passion for excellence.

Within a constructive and challenging environment, together with our partners we promote, support and connect young researchers to find new and innovative solutions. Therefore, this 10th Anniversary Special Issue of the E-Finance Lab Quarterly is dedicated to these young people that became excellent academics or practitioners – our E-Finance Lab Alumni.

Eight E-Finance Lab Alumni, that are working as successful researchers at renowned universities now, will present their latest research projects and ideas in this issue.

Editorial

10 Years of Providing Solutions for the Financial Sector

Reto Francioni

2003, the year when the E-Finance Lab started its academic work, was the year of the Enron accounting scandal. As it turned out, the ensuing confidence crisis was just a frontrunner (if I may be allowed this expression) of the so-called subprime mortgage crisis, which quickly spread from the US to Europe. Triggered by excessive risk-taking, made possible by moral hazard and a lack of transparency in the unregulated parts of the financial market, the knock-on effect was a full-fledged financial crisis starting in 2007-2008. The subsequent collapse of several major players forced governments to step in with a series of bailouts, sparking the on-going European sovereign debt crisis. By now, though a global recession in the real economy has been averted, at the same time some member states of the European Union proved and continue to be vulnerable.

It has been in this operating environment that Deutsche Börse Group has sought to offer contributions that enhance market efficiency and risk management. Likewise, the E-Finance Lab

has remained consistent in its dedication to developing methodologies that promote the use of information technology to support the transparency, safety and integrity of markets. In other words, when looking back now on its first ten years, the E-Finance Lab can be proud that, like Deutsche Börse Group, it has devoted itself to developing solutions through making use of IT from a hands-on, business-oriented point of view, but always keeping in mind the larger picture.

If measured in the milliseconds at which today's high-frequency trades can be made, a decade is a long time. After all, new automated systems mean that billions of shares can be processed in a single day, a far cry from the times when paper stock certificates were literally passed around the trading floor. While IT has indeed revolutionized the stock market and OTC trading in a plethora of positive ways (one needs to think only of the real-time risk management now possible globally), it has also made their regulation a far more difficult task, an aspect that the E-Finance Lab has also



Dr. Reto Francioni
CEO, Deutsche Börse AG

investigated. Not that we should shift the blame for the economic turbulence of the past years onto technology; after all, there's a real person behind every computer.

The world in which Deutsche Börse Group as an integrated exchange provider operates, and most certainly Europe, is now about to embark on a new era, one many have described as the epoch of re-regulation. The latter is not to be construed as some necessary evil, but rather as the means to an end that, in spite of the many short-term challenges it poses, in the long term will facilitate, though not guarantee, systemic stability – hopefully. This new epoch of macroprudential regulation begins on our immediate doorstep not only with ongoing discussions on the establishment of a single banking regulator for the Euro area, with the implementation of the European Market Infrastructure Regulation (EMIR), or with the revision of the Markets in Financial Instruments Directive (MiFID), but globally with the final implementation of the clearing obligations required by the Dodd-Frank Act in the

United States and the global capital requirements prescribed by the Basel III rules.

Integrated exchange organizations reduce post-trading risk by providing innovative instruments that enable the financial industry to meet the new challenges in clearing, for example for standardized OTC derivatives such as interest-rate swaps, and offer risk management in the form of central counterparties. Another solution we have devised to bundle effective collateralization is the Global Liquidity Hub we offer through our international central securities depository and asset service provider Clearstream.

With our own stringent insistence on transparency, we hope the next decade will be one in which our diversified exchange organization helps ensure that financial markets are characterized by serving the economy as a whole. It will be one in which IT will no doubt be taken to the next level – and thus one in which the E-Finance Lab will have an important role to play.



Prof. Dr.
Heiko Gewald
Chair of Information
Management,
Neu-Ulm University of
Applied Sciences

Prof. Dr. Heiko Gewald was appointed professor of information management at Neu-Ulm University of Applied Sciences in October 2010. His research focuses on outsourcing, service science and health IT. Dr. Gewald graduated in Business Administration at University of Bamberg and holds a European Masters degree at Heriott-Watt University in Edinburgh. He was a Research Assistant at the E-Finance Lab from 2003 to 2006. Dr. Gewald was the first external research assistant nominated by a corporate sponsor of the E-Finance Lab to receive his PhD. His research was supported by IBM.

"I truly enjoyed my time at the E-Finance Lab. The close collaboration and the challenge to bridge the gap between research and practice constantly fostered new ideas. I remember the times as vibrant and the interaction on a national and international level as especially inspiring. I wish the current and future management teams all the best in providing great, rigorous and relevant research for the next 10 years (and thereafter)."

New Sourcing: A Research Agenda Guided by Practice

Outsourcing has established itself as widely accepted management practice to achieve higher levels of corporate effectiveness and efficiency. Researchers have spent considerable effort in studying the outsourcing phenomenon and theorizing about it over the last 20 years. The academic output has been numerous, resulting in well tested theories, frameworks and models as well as advice to practice.

Every once in a while it may be beneficial to reflect the work of recent years and (re-)connect research to practice. In topics like IT Outsourcing and Business Process Outsourcing, industry managers underwent a noticeable learning curve over time and academics need to ask themselves: Are our research topics still up to date or do we need to think about the next stage, a form of next generation outsourcing, which is likely to dominate the outsourcing discussion over the upcoming months and years?

To identify upcoming challenges which could foster new research projects, a thorough discussion with experts in the field based on rigorous analysis of the literature has been conducted. Thirteen sourcing managers took part in structured interviews. The interview partners had an average experience with outsourcing engagements of more than thirteen years and each was currently overseeing several outsourcing engagements. Throughout our extensive discussions four topics of high relevance for practitioners, which are not yet adequately reflected in research, were named recurrently:

- Multi-Vendor Outsourcing and Sourcing Networks
- Cloud Computing and its implications for outsourcing
- Risk Management of outsourcing
- Methods to bridge the offshoring gap

The two predominantly raised topics are briefly presented in the following.

Multi-Vendor Outsourcing and Sourcing Networks

Over the last years, several companies changed their outsourcing strategy by moving from single large outsourcing contracts into smaller pieces of work, known as selective outsourcing or "out-tasking". As a consequence, the handling of outsourcing arrangements changed. Clients need to deal with a larger number of outsourcing-providers, leading towards a multi-vendor outsourcing structure. Therefore tasks shifted from "outsourcing a function" towards "managing the network of outsourcing partners". Practice is looking for effective governance mechanisms to manage multi-vendor outsourcing engagements. As sufficient experience has been built up to manage smaller outsourcing arrangements, the interview partners identified another area for action: building and managing outsourcing networks. This describes the desire to outsource those tasks which actually do not have enough volume to be attractive to an outsourcing provider. By combining several clients into a network and thus grouping

volume together it may be possible to create an attractive case for a service provider. The questions for research in this respect are manifold, including governance structures, network effects etc.

Cloud Computing and its implications for outsourcing

Cloud Computing promises to offer flexible, scalable and cost-effective IT solutions on a pay-per-use pricing. "The Cloud" is one of the burning topics in information technology these days and practitioners see the need to utilize it in their sourcing strategy. However, in its current state Cloud Computing is mainly used as private Cloud (more similar to the corporate data processing center using virtualization techniques). Little is yet known about how Cloud Computing can help to dynamically reconfigure the – partially outsourced – value chain and what the specific advantages are that the Cloud can offer for the outsourcing-client. Including Cloud Computing into the corporate IT and sourcing strategy is still widely an unsolved issue.

Even though outsourcing is present for more than 50 years now it is still an ever-changing area. The aim of this work was to identify upcoming topics for research as guided by the practitioners who want and need to benefit from research outcomes. An earlier stage of this research was presented by Gröh, A.; Gewald, H.; Stuska, T.: Next Generation Outsourcing – A Research Agenda Guided by Practice. In: 16th Pacific Asia Conference in Information Systems, Vietnam, 2012.

How Social Media Can Be Used to Predict the Stock Market Development

Various studies in finance and psychology have shown that the stock market can be driven by mood states of market participants. For instance, sleeping habits (Kamstra et al., 2000) determine the people's feelings and investment behavior. Hishleifer and Shumway (2003) found a positive relationship between sunshine and stock returns. Other authors refer to depressions (Kamstra et al., 2003) or the outcome of soccer games (Edmans et al., 2007) which both affects the investors' sentiment and in turn investment decisions.

The influence of sentiment on the stock market development can be explained by considering the investor's risk assessment. The link between mood levels and risk behavior is well established in the literature. For instance, several authors provide evidence that high sensation seekers are more likely to take economic and financial risk, while low sensation seekers show lower risk-taking tendencies (Harlow and Brown, 1990; Horvath and Zuckerman, 1993; Wong and Carducci, 1991). People with lower risk appetite prefer riskless assets over risky assets (Bierwag and Grove, 1965; Hicks, 1963). Thus, stock returns should increase (decrease) if investors are in good (bad) mood (Figure 1).

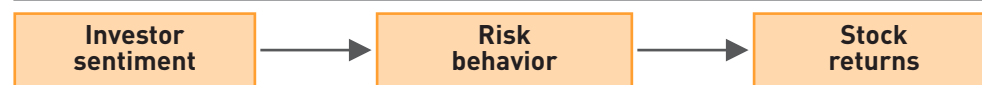


Figure 1: Relationship between Investor Sentiment and Stock Returns

With the rise of the Internet and Social Media applications in particular, researchers have now the opportunity to extract emotions from user-generated content and to precisely estimate mood levels. The social mood (Nofsinger, 2003) can be used as a proxy for the investor sentiment. First studies in this research area deliver promising results. Bollen et al. (2010) have shown that mood levels extracted from public tweets have predictive value to the Dow Jones Industrial Average. In a recent study, Karabulut (2012) also found that Facebook's Gross National Happiness can predict returns in the US stock market.

Our research builds on these previous results and aims to further improve the forecast accuracy of user-generated content by taking into account the network structure of the Social Web. Among others, geographic data about a person's location and the number of followers are part of our dataset. The question seems to be no longer *if* Social Media can be used to predict stock returns but rather *how* market participants can achieve superior returns. Since the beginning of 2011, our computer systems continuously collect posts from Social Media sources (e.g. Twitter, Facebook). By analyzing more than four million tweets per day we created an algorithm that

computes a collective mood state indicator that we translate into real-time trading recommendations for a number of different stock markets in the world (e.g. Germany, UK, US).

Besides assessing mood levels of investors, we also aim to use Social Media for measuring the company sentiment. User-generated content which represents consumers' direct feedback on products has become increasingly important for investors. Various studies provide evidence that online expressions of interest can be used to predict future sales or stock returns. Company sentiment was measured with the help of consumer reviews (Tirunillai and Tellis, 2012), expert reviews (Tellis and Johnson, 2007), Internet message boards (Das and Chen, 2007) and Google search trends (Choi and Varian, 2009).

Our portfolio consists of several blue chip companies which are major subjects in discussions of the Internet community. Based on the current sentiment our algorithm creates buy or sell recommendations for each particular stock. During our track record of virtually two years (01/2011 – 11/2012) our portfolio achieved a return of 34.86%. We are thus able to clearly outperform major stock indices such as DAX and S&P 500 which only gained one-digit or small two-digit percentage gains within this time period.

This research is a joint project with Dipl.-Kfm. Michael Nofer.



Prof. Dr.
Oliver Hinz
Chair of
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Prof. Dr. Oliver Hinz holds the Chair of Electronic Markets at the TU Darmstadt since April 2011. His academic work focuses on problems at the intersection of markets and technology. He graduated in Business Administration and Information Systems at the TU Darmstadt and worked as consultant in the financial service industry for several years. He then acquired his PhD at the Goethe University and was part of the E-Finance Lab as Junior Professor (2009-2011).

"The E-Finance Lab is a unique melting pot for interdisciplinary research and has substantially advanced scientific progress in finance and related fields. All the best wishes for a prosperous future."



**Prof. Dr.-Ing.
André Miede**
University of Applied
Sciences Saarbrücken

André Miede is Professor of Computer Science and Business Information Systems at the University of Applied Sciences Saarbrücken (Hochschule für Technik und Wirtschaft des Saarlandes). From 2007 to 2010, he was part of the E-Finance Lab's co-operative PhD program and received a PhD from TU Darmstadt. In addition to his research activities, he worked in the financial services sector as an IT and management consultant for several years.

"The E-Finance Lab facilitates the unique connection of high-class academic research with leading companies in the IT and financial services sector. For years now and hopefully many more to come, this proves the beneficial combination of research approaches with industry experience in order to solve important and difficult problems in the field."

Cloud Computing: Threat as a Service?

Cloud Computing, initially considered by many to be only a temporary hype, has evolved into an accepted and mature architectural paradigm and service delivery model. It realizes the vision of service-orientation, where service providers offer pools of configurable computing resources and service consumers can dynamically use (or release) resources as their business needs require. Thus, computing is envisioned to become a utility such as electricity or water, ready-to-use right from the network and billed on a pay-as-you-go basis.

Underneath this general concept are three well-known basic service models according to the National Institute of Standards and Technology: Software-as-a-Service (SaaS, complete applications are provided via the Cloud), Platform-as-a-Service (PaaS, consumers deploy their own applications on a platform provided in the Cloud), and Infrastructure-as-a-Service (IaaS, provision of basic computing needs such as processing power, storage, etc. in the Cloud). For the financial services industry, service-orientation in general and Cloud Computing in particular is of great interest, e.g., in order to reduce IT infrastructure costs or to increase business flexibility for rapidly changing markets. This has been continuously shown by E-Finance Lab researchers together with business and IT experts from the industry.

However, serious security and privacy concerns have been and still are a huge obstacle for adopting Cloud Computing, especially in the financial services industry. The responsible concerns are that, together with beneficial services as described above, new security threats will arise as additional "services" from the Cloud as well. Of particular interest are the classic "CIA" security goals: Confidentiality (hinder non-authorized access to and disclosure of data), Integrity (protection of data against unauthorized and unnoticed manipulation), and Availability (authenticated and authorized subjects can access and use an IT resource upon demand).

Past research of the E-Finance Lab in this area has investigated serious threatening side-effects of service-orientation and Cloud Computing with respect to revealing sensitive business information of service consumers (see EFL Quarterly 02/2012). In addition, one of Cloud Computing's core concepts and benefits, virtualization, leads to difficult security challenges. Virtualization means that one physical high-performance machine can act like and host multiple virtual ones to its users. This enables fast resource provision as any required machine can be deployed nearly instantly as a Virtual Machine (VM), featuring the attributes requested by the service consumer (operating system, performance, etc.). Because virtualization is a concept that is older than Cloud

Computing, many of the arising security challenges are not completely new. However, the circumstances in which they may arise are not always well understood and have to be addressed for a successful adoption of Cloud Computing, e.g., in the financial services industry, where strict and increasing regulatory requirements have to be met.

Two selected security challenges of virtualization are VM Hopping and VM Diversity. With VM Hopping, an attacker on a VM gains access to another VM running on the same physical machine. This threatens all of the above "CIA" goals, especially in the service models PaaS and IaaS. On the other hand, VM Diversity means that a variety of different (virtual) operating systems leads to a configuration nightmare of having a current, secure, and robust system available on the network. These security challenges, among many others, have to be addressed explicitly by the service provider's security management in order to avoid offering new threats as an additional "service".

The research described here is based on a cooperation between the E-Finance Lab and National Chiao Tung University, Taiwan, published, e.g., as Tsai, H.-Y.; Siebenhaar, M.; Miede, A.; Huang, Y.-L. & Steinmetz, R.: Threat as a Service? Virtualization's Impact on Cloud Security. In: IEEE IT Professional, 14 (2012), pp. 32-37.

Determinants of Process Runtime in Financial Transaction Processing

The efficient processing of financial transactions remains one of the major challenges of financial institutions' IT departments. This challenge is driven by a set of technical and organizational factors which are typically not under full control of the financial institution and its IT department. However, it is highly relevant for the IT management to understand how these diverse factors influence their systems' processing efficiency. Such insights can then be used to further improve efficiency of the corresponding transaction processing systems (TPS).

Against this background, this article presents an analysis of transaction processing (trade booking) within the middle office of a major investment company (Figure 1). In this context, processing of transactions is time-critical since other units such as book keeping, risk management or fund customers need to be informed timely about recent trades. Therefore, the transaction processing needs to

be performed efficiently, i.e. without any avoidable delays. In our analysis, we identified and measured four different factors that positively and negatively affect process runtime on the basis of a hazard function model regression and 29,200 actual trade bookings within the middle office to explore the impact of the following factors:

First, IT system usage and automation enables the middle office to increase process runtimes by increasing straight through processing (STP) rates, i.e. to avoid manual intervention. This can be achieved by designing and deploying an efficient TPS. For two subsystems of the deployed TPS, we found that automated processing can significantly reduce process runtime by nearly 90%. However, the potential of full automation is limited due to other factors that delay further processing.

Second, external factors including brokers and custodians can significantly affect process run-

time. This is because these institutions deliver additional information needed (e.g. broker confirmations and fees). Our results show that brokers and custodian banks can both, positively and negatively affect process runtime and that there is a significant difference between the two organizations.

Third, the different processing requirements of subasset classes were found to influence processing runtime. For example, the processing of a specific class increased processing time by more than 250% compared to an average runtime.

Finally and fourth, we also explored the impact of fund managers at the front office. Here, both positive and negative effects have been observed but only at lower levels of significance.

In summary, our study illustrates how both, internal and external factors, affect process runtimes and provides detailed information on where to put additional efforts and IT budgets in financial transaction processing. This research has been conducted in collaboration with researchers and industry partners of the E-Finance Lab. Further detailed findings are provided in Muntermann, J.; Weber, M.C.; Wondrak, C.: Measuring IT System Value with entity-specific Factors influencing Process Runtime Efficiency. Forthcoming in: Proceedings of the 11th International Conference Wirtschaftsinformatik; Leipzig, 2013.

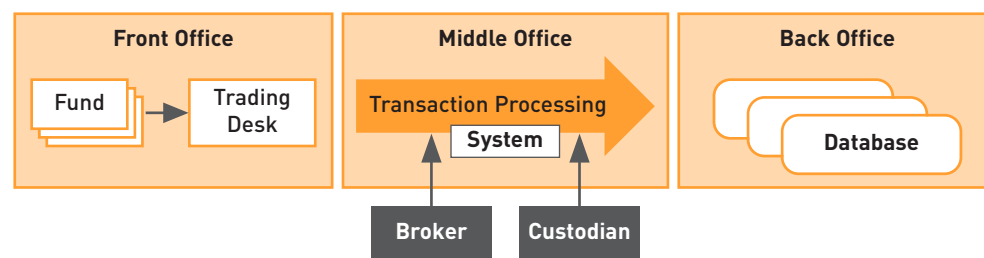


Figure 1: Process Flow in the Front, Middle and Back Office of an Investment Company



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Prof. Dr. Jan Muntermann holds the Chair of Electronic Finance and Digital Markets since October 2010. His academic work focuses on financial Decision Support Systems and IT governance. He graduated in Business Administration at the University of Frankfurt and acquired his PhD at the Institute of Information Systems. From 2008 to 2010 he was a Junior Professor at the E-Finance Lab in Frankfurt and since then he has been a research project partner of several E-Finance Lab projects.

"The E-Finance Lab fosters both, highly relevant and rigorous research. It provides a unique environment that facilitates interdisciplinary research which is conducted in close collaboration with key players of the financial industry".



Prof. Dr.
Christian Schulze
Assistant Professor
of Marketing,
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Prof. Dr. Christian Schulze has been an Assistant Professor at the Frankfurt School of Finance & Management since March 2012. He started his career in 2004 as a consultant in financial services for BCG. In 2007, he joined the E-Finance Lab as a Research Associate. After obtaining his PhD from Goethe University in 2011, he spent several months as a visiting researcher at the University of Texas in Austin. His academic work focuses on customer management and online marketing and has been published in some of the best journals.

"In the E-Finance Lab, researchers and practitioners with very different backgrounds come together to work on highly relevant topics – for me, this interdisciplinary approach is what makes the E-Finance Lab so valuable."

The Second Screen: Why Banks Must Re-think Their TV Advertising

Given the current state of financial services: why should anyone care about banks' TV advertising?

The financial crisis, turbulent markets and investors' current distaste for risky business models have shifted bank managers' attention back to their core business: serving customers. As banks attempt to stabilize or even grow their income streams from their customer business, competition for attractive customer segments is growing tremendously as the overall market lacks substantial growth.

In their quest to convince consumers to switch their prevailing financial services provider, banks strongly rely on TV advertising. Because TV ads usually last less than 30 seconds, banks typically use these ads to position the brand or their service offering in general, rather than explain or promote a complex investment product. The positive effect of these often very expensive branding campaigns on the acquisition of new customers, however, is anything but undisputed. To make matters worse, current technological trends further reduce the effectiveness of traditional TV ads.

Why do banks' TV ads not work anymore?

Just picture a typical family in front of the TV on a Saturday night. They are watching a casting show, are rooting for their favorite contestants and might even pick up the phone to cast their votes. Then comes the commercial break – and all of the sudden, the kids take out their smartphones to update

their Facebook status, mom starts reading the news on her iPad and dad checks his e-mails on his laptop. How likely is it that the 100,000 Euros spent on the bank's TV ad are indeed well spent?

Of course, the positive effects of TV ads will not disappear overnight. But recent studies show that more than 85% of all consumers that own mobile devices with Internet access use them as a "second screen" while watching TV. Interestingly, this new phenomenon not only challenges banks' current approach to customer acquisition (via brand-focused TV ads), but also offers new possibilities for making customer acquisition more effective.

How can banks benefit from the "second screen" phenomenon?

If banks ignore the "second screen", they will suffer from increasingly less effective TV ads, which in turn will hurt their customer acquisition efforts. If done right, however, banks could also use the new trend to overcome two of the main weaknesses of traditional TV ads: Their inability to convey complex information and their lack of a feedback channel.

Banks can use advertising on the "second screen" and synchronize these online ads with TV. If, for example, the consumer sees the bank's ad on Facebook or on the news website while at the same time watching the ad on TV, the effectiveness of both online and TV ads are not only likely to increase. The consumer can now even

interact with the online ad and, for example, gather more information about a new product or even schedule an appointment with his bank advisor in direct response to a TV ad.

What are the opportunities and pitfalls?

Initial studies on "second screen" advertising suggest great potential for advertisers to increase the effectiveness of traditional TV ads. At the same time, it is conceivable that consumers react negatively to synchronized advertising. Research in related areas has shown, for example, that consumers might also react negatively to aggressive personalized ads.

To determine how to make the best use of advertising on the "second screen", we have started a new scientific study investigating consumers' reaction to various advertising approaches. In this study, we investigate the potential negative effects that arise when banks do not advertise on the "second screen". For banks that jump at the opportunity, we also evaluate the effectiveness of several alternative approaches to "second screen" ads. For example, we compare the effectiveness of informational, social and transactional ads on the one hand as well as the effects of different formats and timing options on the other. In case you are interested in participating in the study or would like to be informed about the results, please don't hesitate to contact me via e-mail at email@christian-schulze.de or find the complete contact details at <http://fs.de/schulze>.

Information Systems, Organizational Mechanisms and Innovation Success

Innovative outcomes, predominantly in the form of product/service and process innovations, and the environment leading to those outcomes, are central tenets of research since the work of Schumpeter (1934). Innovation is also central to managerial considerations as staying innovative is an ever-present challenge of companies. Namely, in developed economies such as Germany, companies may, for example, choose to compete by differentiating from competitors ("being a premium supplier") which typically encompasses being at the innovative edge, or even leading in innovation. Consequently, quite a number of approaches have been adopted to address the issue of competing by innovation such as Open Innovation (Chesbrough, 2003), the Stage-Gate model (Cooper, 2008), and transformational leadership models. Furthermore, information systems such as project management tools, knowledge databases, idea management systems, and social media platforms have been introduced. Still, the challenge of being and staying innovative remains unchanged.

Many studies have investigated antecedents of innovation and consistently show that knowledge exchange and combination from firm-internal sources but also from firm-external sources is very important. In this respect, Cohen and Levinthal (1990) point to the importance of absorptive capacity

(ACAP), "the ability to absorb knowledge from outside the firm and apply it to commercial ends".

Although ACAP-related research produced insights into, e.g., the role of channels of communication and organizational form, Lane et al. (2006, p. 857) contend that "very few studies have examined drivers within the firm". There are only a few exceptions such as the study by Van den Bosch et al. (1999) dealing with formalized coordination mechanisms that are conducive to integration and application of knowledge. However, although, e.g., coordination may be greatly enhanced by information systems, interestingly the impact of information systems on ACAP and innovation success seems to be a gap (Volberda et al., 2010) which is also reflected by a recent review revealing that "there have been few detailed investigations of the relationship between IT and absorptive capacity" (Roberts et al., 2012, p. 640).

Considering that "information systems exert their influence on the firm through complementary relationships with other firm assets and capabilities" (Wade and Hulland, 2004, p. 109), it seems promising to investigate the complementary effects of information systems and organizational mechanisms designed to coordinate and control (Cardinal, 2001) innovation activities.

Considering the work of prior literature regarding innovation success, ACAP, and organizational coordination and control mechanisms, this research projects sets out to answer the following research question:

How are information systems and organizational mechanisms related to absorptive capacity and innovation success?

Answering this question, we expect to highlight which combination of type of information system and organizational mechanism will render an effect on which component of ACAP and eventually innovation success. We expect, e.g., to clarify the effect of a certain type of information system on the ability to acquire new external knowledge in a setting where clan control and coordination through socialization prevails.

To answer the research question, a theoretical model has been developed that draws on the literature on absorptive capacity (Zahra and George, 2002), combinative capabilities (Van den Bosch et al., 1999), different types of control modes (Kirsch, 1997) and information systems (Pavlou and El Sawy, 2010). Building on that model, case studies have been carried out to gain deeper insights into the phenomenon under study. In 2013, the next step will be a survey to test the research model.



Prof. Dr.
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Professor of Management and Innovation,
German Graduate School of Management & Law (GGS)

Since 2008, Prof. Dr. Heinz-Theo Wagner is Professor of Management and Innovation at the German Graduate School of Management & Law, Heilbronn. His academic work focuses on IT business alignment and innovation networks. Prof. Wagner graduated in Geography at the University of Giessen, Business Administration at the University of Hagen, and received his PhD for his research on IT business alignment with the E-Finance Lab at University of Frankfurt. Previously, he has been working for more than 20 years in diverse expert and management positions on business and IT projects for various companies.

"The E-Finance Lab provides an inspiring atmosphere for researchers and practitioners alike."



Prof. Dr.
Tim Weitzel
Chair for Information
Systems and Services,
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Prof. Dr. Tim Weitzel is Chair for Information Systems and Services at the University of Bamberg since 2005. His research on IT management and alignment, IT adoption, standards, outsourcing, E-Finance and E-HR has been published in journals including MISQ, MISQ Executive, EJIS, JIT, JSIS, or DSS and has been cited over 1,500 times. From about 2001 to 2004, he was one of the team establishing the E-Finance Lab.

“The E-Finance Lab has been a great breeding ground to understand and design the E in E-Finance. All best for another ten years of, as Swift said, discovery that consists of seeing what everybody has seen and thinking what nobody else has thought.”

SOA what? SOA Governance in the Services Industry

Only around one in five firms reap the anticipated benefits from Service Oriented Architectures (SOA). Industry analysts assume that a lack of SOA governance is the main reason why SOA projects fail. And, indeed, the vast majority of the literature is on technical issues, and a business value and governance view is missing. So, what do SOA governance mechanisms help to implement an effective SOA that achieves IT flexibility and reuse?

Why SOA Governance?

The SOA concept comprises the idea of a component-oriented coupling of business processes and their implementation using a new service layer. Hence, introducing SOA necessitates managing this new service layer between the existing business processes and application systems. SOA governance therefore requires finding ways to establish structures and processes and support employees to handle the new relationship between IT and process architecture.

SOA Governance Mechanisms

Our SOA governance framework draws on structures, processes, and employees/relations and is elaborated based on the generic IT governance model of De Haes and Van Grembergen (2009) and the conceptual SOA governance model by Kohnke et al. (2008). Structures are concerned with establishing new decision-making bodies (like a SOA Center

of Excellence) and using standards (from criteria whether functionality should be implemented as services to design standards for system interfaces). Processes embrace Service-Level-Agreements (SLAs), service management during the service lifecycle, and service development processes. Employees/relations comprise the qualifications of involved IT employees and IT business alignment.

Results

Insights from 81 SOA-using organizations in the German service industry (US SIC codes 4,000 to 8,999) reveal that, overall, using standards, increasing the qualification of employees, and establishing clear service management and development processes are the most effective SOA governance mechanisms.

Implementing new, dedicated decision-making bodies for SOA hampers organizations in achieving higher degrees of IT flexibility and reuse. Our analysis supports the view that establishing new decision-making bodies specifically for SOA is not a necessity in earlier phases of SOA implementations. The negative statistical relationship indicates that adding more governance might even reduce effectiveness. By implementing additional decision-making bodies for SOA, decision making complexity increases and eventually hampers IT flexibility and reuse. As additional effect that also shows in case studies, depart-

ments might start working around over-governed SOAs and try to hide local SOA initiatives to avoid additional decision-making bodies that (from the department's perspective) add delays and confusion without contributing anything positive.

Using standards, service management processes, qualifications of employees, and IT/business communication show the largest effects on IT flexibility. These four mechanisms are important as they provide a solid base for other (maybe later implemented) mechanisms. Thus, organizations should focus first on implementing these four mechanisms to support the entire SOA development as they affect the overall SOA implementation positively.

It is more difficult to increase scalability than the other dimensions of IT flexibility: Only the use of standards, employee qualifications, and better IT business communication are effective mechanisms to increase scalability. Increasing scalability by adopting SOA is realized mainly on the technical layer and not from using SOA governance processes.

For more results and references, see: Joachim, N.; Beimborn, D.; Weitzel, T.: The Impact of SOA Governance Mechanisms on SOA Effectiveness. Forthcoming in: Journal of Strategic Information Systems, 2013.

The Digital Sentiment Index (DSI) – Capturing Your Brand in the Digital World

Do you want to know what people post online about your service or brand? Probably you do, because it represents what people think and it will influence other people’s opinions. As a consequence, it will affect consumers’ buying decisions. Just think about yourself. Don’t you search for product or service evaluations on the Internet, reading reviews and other blog posts? User-generated content represents a wealth of behavioral data and analyzing this data generates important insights. Common measures such as numbers of online posts, links, LinkedIn members, followers on Twitter, fans on Facebook and others have advantages and disadvantages. But, up until now, many firms lack a structured approach to capture the opinions people express digital. Answering the question about how to integrate the content across multiple platforms to devel-

op a consistent view of “consumer chatter” is top priority to evaluate the success of firms’ (social) marketing programs. It shows how technology and data intelligence creates value for firms. Against this background, we have developed the Digital Sentiment Index (DSI). DSI is a metric that captures the sentiment about firm X relative to competition expressed in the most relevant and public chatter on the Internet, in one single number. DSI ranges from - 100 (very negative chatter) to +100 (very positive chatter). It is a joint effort from academia and practice, is designed to provide actionable insights for decision making, is actively deployed by 100+ brands in Germany, USA, UK, France, Netherlands, Finland and Sweden, and drives firm performance. Thereby, DSI mimics customer behavior in the digital world. Information is collected like con-

sumers do, combining browsing, reviews, shops, social networks and search. Collected information will be weighted, and the overall score is calculated based on customer decision making. How does DSI work? An example of DSI illustrates that Brand X has a DSI of 0.4 (vs. 5.8 and 19.2 for competition). This is a drop of 7.8 compared to the last quarter due to increased negative discussions on important domains. Figure 1 visualizes that 54% of all posts are about Brand X, Brand X has only a share of 32% on the most important domains. In addition, 71% of the chatter is negative, which has increased over time. These provide the main reasons for Brand X’s DSI relative to competition. How can firms react? DSI should be seen as a mirror that illustrates ways for improvements by, for example, topics, sentiment about topics, or source of chatter. Use this information to make, for example, decisions regarding your service, create a platform to engage with selected ambassadors, or try to claim an important topic ahead of competition.

These activities will influence consumers’ opinion either directly or via chatter by others and affect buying decisions. In addition, firms are able to evaluate their activities via changes in DSI and use the new insights to further improve. *DSI was initiated together with Sonja Gensler (University of Münster) and Joep Arts (Oxyme B.V.).*



Prof. Dr. Thorsten Wiesel
Institute of Value-Based Marketing,
University of Münster

Prof. Dr. Thorsten Wiesel is the Director of the Institute of Value-Based Marketing at the Marketing Center Münster since August 2012. Before joining Münster, he had positions at the VU University Amsterdam and the University of Groningen. His academic work focuses on quantifying the effectiveness of marketing activities on firm performance and linking marketing with finance. He graduated in Business Administration at the University of Frankfurt and acquired his PhD at the Chair of Electronic Commerce. From 2003 to 2006 he was Research Associate at the E-Finance Lab in Frankfurt.

“Marketing research needs to solve real business problems. The E-Finance Lab offered a great opportunity to work together with businesses in order to share ideas, define important problems, exchange data and insights, and – most importantly - have impact. A combination quite unique worldwide.”

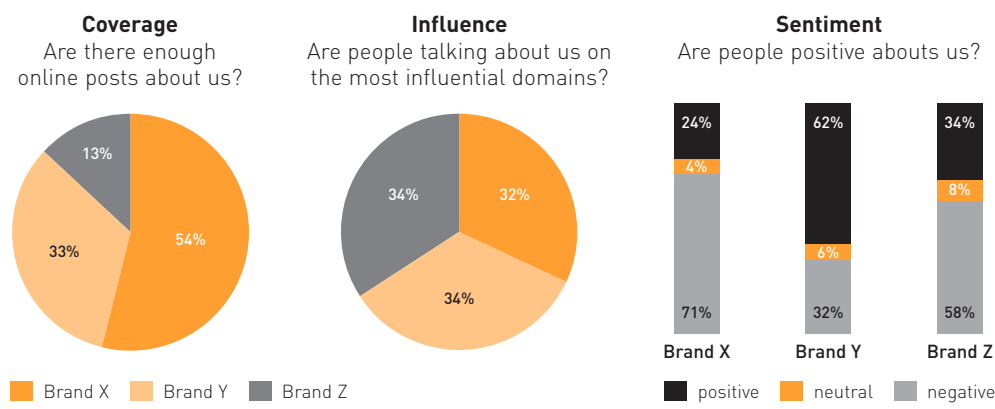


Figure 1: DSI – Hypothetical Example

Successful Alumni of the E-Finance Lab since 2003

Dr. Ralf Ackermann
 Dr. Patrick Behr
 Dr. Daniel Beimborn
 Dr. Rainer Berbner
 Dr. Sven Berger
 Dr. Manuel Bermes
 Dr. Stefan Blumenberg
 Dr. Ralph Blüthgen
 Prof. Dr. Martin Böhm
 Dr. Oliver Bosch
 Dr. Valentin Braun
 Dr. Michael Chlistalla
 Dr. Julian Eckert
 Dr. Rainer Fladung
 Dr. Lars Friedrich
 Dr. Tanja Frischmann
 Dr. Markus Fritsch
 Dr. Cornelia Gellings
 Dr. Tom Gellrich
 Dr. Sonja Gensler
 Dr. Ralf Gerhardt
 Dr. Eva Gerstmeier

In 2013, we look back to 10 years of very successful achievements since the start of the academic work of the E-Finance Lab in 2003. Since then, the E-Finance Lab not only delivered an extraordinary record of research publications in renowned international journals and conferences, but also was able to disseminate research results into the business community over a wide range of knowledge transfer channels, e.g., our annual conferences, two quarterly newsletters, individual workshops with our sponsoring partners and the monthly E-Finance Lab Jour Fixes.

But the most important channels to disseminate our results are people. Therefore, we are proud that we can present this list of successful E-Finance Lab Alumni. Today, most of them are working in management positions in the financial services industry or in academia. And a lot of them successfully passed one of the major platforms for mutual knowledge transfer between the E-Finance Lab and our sponsoring firms – our cooperative Ph.D. program.

Prof. Dr. Heiko Gewalt
 Dr. Fabian Gleisner
 Dr. Robert Gregory
 Dr. Sven Groth
 Dr. Markus Gsell
 Prof. Dr. André Güttler
 Dr. Oliver Heckmann
 Prof. Dr. Oliver Hinz
 Dr. Markus Holzhäuser
 Dr. Christian Jansen
 Dr. Markus Lammers

Dr. Markus Lilienthal
 Dr. Marco Lutat
 Dr. Jochen Malinowski
 Dr. Sebastian Martin
 Dr. Christian Messerschmidt
 Prof. Dr. André Miede
 Dr. Armin Müller
 Prof. Dr. Jan Muntermann
 Dr. Michael Niemann
 Dr. Taro Niggemann
 Dr. Immanuel Pahlke

Dr. Donovan Pfaff
 Dr. Michael Prifling
 Dr. Nicolas Repp
 Dr. Torsten Schaper
 Dr. Philipp Schmitt
 Dr. Lisa Schöler
 Dr. Gregor Schrott
 Dr. Stefan Schulte
 Prof. Dr. Christian Schulze
 Dr. Felix Schwarze
 Dr. Sertaç Son
 Dr. Sascha Steffen
 Dr. Tanja Stepanchuk
 Dr. Lars Turczyk
 Dr. Jens Vykoukal
 Prof. Dr. Heinz-Theo Wagner
 Prof. Dr. Tim Weitzel
 Dr. Martin Weldi
 Prof. Dr. Thorsten Wiesel
 Dr. Martin Wolf
 Dr. Kim Wüllenweber
 Dr. Frank Zickert

Insideview

E-Finance Lab: Beginning and Growth

INTERVIEW WITH PROF. DR. WOLFGANG KOENIG, CHAIRMAN OF THE E-FINANCE LAB,
GOETHE UNIVERSITY FRANKFURT AM MAIN

The E-Finance Lab was founded end of 2002. We ask the chairman for a short retrospective and to highlight the main achievements of the E-Finance Lab. What led to the foundation of the E-Finance Lab?

Powerful masterminds from the extensive German banking scene – including important suppliers as well as the politics – felt the necessity to substantially step-up research on IT-based strategies and applications in the finance industry. One aim was to systematically counter-act the conceivable reduction of jobs in the industry due to increasing process automation. Together with the Goethe University Professors Bernd Skiera, Mark Wahrenburg, and Wolfgang Koenig plus Professor Ralf Steinmetz (Technische Universität Darmstadt) the idea was realized.

Who were the people of the first hour?

The then Hessian minister-president Roland Koch sustainably recommended combining the forces of Goethe University Frankfurt and TU Darmstadt. Also, Hermann-Josef Lamberti (then

board member of Deutsche Bank, responsible for IT and personnel) and Horst Westerfeld (then in Siemens AG responsible for the banking industry) were important men of the first hour. Deutsche Bundesbank agreed to head the council of the E-Finance Lab – Hans Reckers (then member of the board of Bundesbank) became chairman. As a tier-2 partner, Stephan Wolf from Interactive Data Managed Solutions complemented the team. Also of great help was the support of the Cities of Frankfurt and Darmstadt – represented by the respective Mayors. Not to forget Rudolf Steinberg, then president of the Goethe University, who was always a strong supporter of high quality adjunct institutes – and the University apparently benefitted from excellent research publications and improved international rankings.

Which scholars and cooperation partners extended the E-Finance Lab in the first five years?

Professors Peter Gomber and Andreas Hackethal joined the team and also brought their



**Prof. Dr. Wolfgang Koenig,
Chairman of the E-Finance Lab,
Goethe University Frankfurt am Main**

research assistants for collaborative research projects. Within five years from the start Deutsche Börse Group, DZ Bank Gruppe, Finanz Informatik, IBM and T-Systems complemented the tier-1 partners, and 360T joined as tier-2 partner. Thus, not only the three German banking sectors – private banks, cooperative banks and public savings banks – but all the main players in the extensive finance scene in Germany are represented.

What are the main achievements of the E-Finance Lab?

The E-Finance Lab is a perfect blue print of how to combine public and private forces to achieve top quality research results and, on the other hand, help industry partners to solve their problems. In times of limited public resources and, at the same time, increasing international competition, private (co-) funding of research is a means to keep up and improve research quality.

As regards academic achievements, we have placed several research results in international

top journals with double-blind peer review. Moreover, E-Finance Lab researchers have won more than 20 best paper awards of highly ranked international conferences. With respect to the interests of our cooperation partners, we have often translated these research results in the “language” of practical applications. In addition, we have conducted a set of in-house seminars to discuss our research results and open questions in practice. A particular thank goes to our cooperation partners who did not only contribute financially to these successes but also by providing real-world data and intellectual support.

How did the E-Finance Lab doctoral alumni develop?

After 10 years, the E-Finance Lab has about 70 doctoral alumni. Ten of them have embarked as professors in top Universities. All the rest received top jobs in the extended finance industry. This also can be taken as indicator of the fruitful cooperation of both sides.

Thank you for this interesting conversation.

Infopool

News

3rd International Conference “The Industrial Organisation of Securities and Derivatives Markets: Competition, Liquidity, and Network Externalities”

After two very successful conferences in 2008 and 2010, Prof. Dr. Peter Gomber (layer 2) will organize and chair the 3rd international conference on “The Industrial Organisation of Securities and Derivatives Markets: Competition, Liquidity and Network Externalities” together with the Center for Financial Studies (Prof. Dr. Erik Theissen) and Deutsche Börse AG on June 14th, 2013 in Frankfurt. The objective of the conference is to bring together academics, practitioners and members of the industry to focus on state-of-the-art academic research in an environment that stimulates discussions and an exchange of ideas.

Prestigious Awards for E-Finance Lab researchers

In the final round of McKinsey & Company’s Technology Awards 2012, two research teams of the E-Finance Lab have been successful in the final of four. For their outstanding research results they were awarded with the second and forth prize.

Decision criteria for the prestigious jury of renowned professors and practitioners are the innovation and practical relevance, the conceptual and methodological quality as well as the presentation of the submitted work. The runner-up, Dr. Nadia Abou Nabout (layer 3) was honored for her dissertation and development of the decision support system PROSAD (Profit Optimizing Search Engine Advertising). PROSAD determines optimal bids in search engine marketing and was successfully implemented in a campaign management software of an online marketing agency in Frankfurt.

The fourth place winners, Immanuel Pahlke and Christoph Seebach (layer 1) were honored for their academic work in identifying important factors facilitating knowledge transfer in enterprise social media platforms. The findings provide evidence on how to develop and integrate advanced social media into the company’s communications infrastructure in order to improve the knowledge transfer between globally dispersed employees.

E-Finance Lab joins Facebook and Twitter

The E-Finance Lab is constantly striving for improvement on its public presentation. Therefore, we recently joined facebook (<https://www.facebook.com/efinancelab>) and Twitter (<https://twitter.com/efinancelab>) in order to provide information timely and frequently. Also this will help to stay in contact with our partners and the considerable number of E-Finance Lab alumni. We kindly invite you to follow us on facebook or twitter to keep in touch continually.

TU Darmstadt Receives Major Grant for Research on the Internet of the Future

In November 2012, the German Research Foundation (Deutsche Forschungsgemeinschaft – DFG) has granted funding for the Collaborative Research Centre (Sonderforschungsbereich – SFB) “MAKI”. The research centre involves 13 departments of TU Darmstadt and partners from other universities, with Prof. Dr.-Ing. Ralf Steinmetz of Multimedia Communications Lab at TU Darmstadt (layer 1) serving as speaker. The research area will focus on the topic of multi-mechanism adaptation for the future Internet and receives a total funding of eight million Euros over the course of four years.

Further information is available at <http://www.maki.tu-darmstadt.de/>

Selected E-Finance Lab publications

Gregory, R.; Beck, R.; Keil, M.:

Control Balancing in Information Systems Development Offshoring Projects
Forthcoming in: Management Information Systems Quarterly (MISQ), 2013.

Gomber, P.; Schweickert, U.; Theissen, E.:

Liquidity Dynamics in an Electronic Open Limit Order Book: An Event Study Approach
Forthcoming in: European Financial Management, 2013.

Siering, M.; Muntermann, J.:

What drives the Helpfulness of Online Product Reviews? From Stars to Facts and Emotions
Forthcoming in: Proceedings of the International Conference Wirtschaftsinformatik 2013, Leipzig, Germany, 2013.

Frischmann, T.; Hinz, O.; Skiera, B.:

Retailers’ Use of Shipping Costs Strategies: Free Shipping or Partitioned Prices?
In: International Journal of Electronic Commerce, 16 (2011) 3, pp. 65-87.

For a comprehensive list of all E-Finance Lab publications see

<http://www.efinancelab.com/publications>

Thank You!

The E-Finance Lab is an industry-academic partnership between Frankfurt and Darmstadt Universities and partners Deutsche Bank, Deutsche Börse Group, DZ Bank Gruppe, Finanz Informatik, IBM, T-Systems, 360 Treasury Systems and Interactive Data Managed Solutions. We would like to particularly thank the representatives of our partners for enabling this unique symbiosis of collaborative research and facilitating information and experience sharing since 2003.

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Dr. Hermann-Josef Lamberti
Deutsche Bank

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Thomas Ullrich
DZ Bank Gruppe

Fridolin Neumann
Finanz Informatik

Gregor Pillen
IBM

Simone Frömming
T-Systems

Prof. Dr. Rainer Klump
Goethe University Frankfurt

Dr. Thomas Schäfer (Honorary Member)
Finance Minister of Hesse

Peter Feldmann (Honorary Member)
Mayor, City of Frankfurt

Jochen Partsch (Honorary Member)
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Technische Universität Darmstadt

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Goethe University Frankfurt

Prof. Dr. Holger Hanselka
Technische Universität Darmstadt

Electronic newsletter

The E-Finance Lab conducts two kinds of newsletters which both appear quarterly so that each six weeks the audience is supplied by new research results and information about research in progress. The focus of the printed newsletter is the description of two research results on a managerial level – complemented by an editorial, an interview, and some short news. For subscription, please send an e-mail to eflquarterly@definancelab.com or mail your business card with the note “please printed newsletter” to

Prof. Dr. Peter Gomber
Vice Chairman of the E-Finance Lab
Goethe University
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The Internet-type newsletter uses short teaser texts complemented by hyperlinks to further information resources in the Internet. To subscribe, please send an e-mail to

newsletter@definancelab.com.

Further information about the E-Finance Lab is available at
www.efinancelab.com.



The E-Finance Lab is a proud member of the House of Finance of Goethe University, Frankfurt.
For more information about the House of Finance, please visit www.hof.uni-frankfurt.de.

THE E-FINANCE LAB IS AN INDUSTRY-ACADEMIC RESEARCH PARTNERSHIP BETWEEN FRANKFURT AND DARMSTADT UNIVERSITIES AND PARTNERS DEUTSCHE BANK, DEUTSCHE BOERSE GROUP, DZ BANK GRUPPE, FINANZ INFORMATIK, IBM, T-SYSTEMS, 360T, AND INTERACTIVE DATA MANAGED SOLUTIONS LOCATED AT THE HOUSE OF FINANCE, J. W. GOETHE UNIVERSITY, FRANKFURT.

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