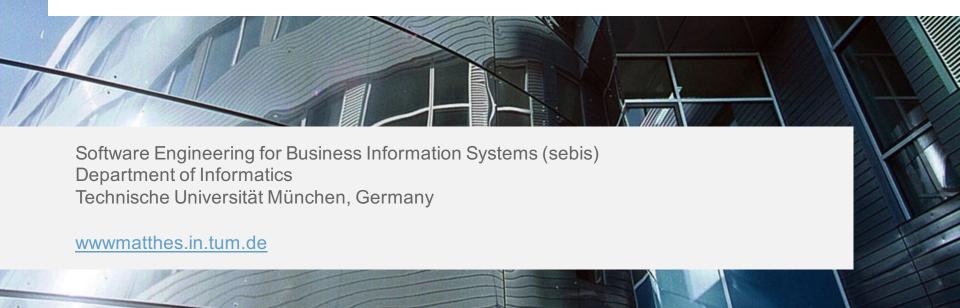




Development of Design Guidelines for the IT Support of the Entrepreneurial Process

Master Thesis – Pascal Stegmann – Final Presentation



Agenda



- 1. Motivation
- 2. Research Question & Approach
- 3. Theory
- 4. Empirical Findings of Survey
- 5. Design Guidelines
- 6. Conclusion & Future Work

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Motivation

Everyone is chasing innovation





Brutkasten für Bahnthemen

DB Lab: Deutsche Bahn plant ein Innovationslabor

Wie Siemens seine Mitarbeiter zu Gründern machen will

Caspar Tobias Schlenk am 30. November 2015 | 4 Kommentare

Empfehlen 243 Tweet X Share 6 in Share 34 G+1 6

Newsartikel. Mit einer "Firma in der Firma" will Siemens seine Mitarbeiter zu Gründern machen. Die Innovation soll abseits der verkrusteten Konzernstrukturen gedeihen.

Innovation Labs

Deutsche Bank will jährlich 500 Startupldeen testen

Christina Kyriasoglou am 5. Juni 2015 | 5 Kommentare

Empfehlen 167 Tweet 1 Share 3 in Share 18 G+1 3

Newsartikel. Die Deutsche Bank plant, sich mit neuen Technologien weiter zu entwickeln. Wie? Das sollen nun drei neue Innovationszentren gemeinsam mit Startups erarbeiten.





Source: deutsche-startups.de, gruenderszene.de



Brutkasten-Übersicht

25 Accelerator-Programme, die jeder kennen sollte

Es gibt immer mehr Accelerator-Programm. Für Gründerinnen und Gründer ist diese Entwicklung begrüßenswert, denn nie gab es mehr Auswahl, nie gab es mehr spannende Unternehmen und Initiativen, die ihre Türen für Start-ups geöffnet haben.

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Motivation

The Lean Startup (LS) Concept and Basic Process



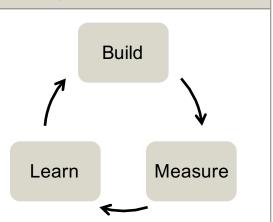
Starting Point

Everything you begin with is a set of assumptions!

Experimentation & Early involvement of customer to generate Validated Learning

Basic LS Process (Build-Measure-Learn Cycle)

- 0. Develop initial set of hypotheses about business/product
- 1. Build **Minimal Viable Product** (MVP)
- 2. Measure progress (Innovation accounting)
- 3. Learn from results > **Pivot**, persevere or perish



Goal of LS Approach

Answer the following questions:

Am I going in the right direction? Do I make progress? Should I stop?

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Research question



Motivation

LS promises a structured and replicable approach to the entrepreneurial process

> Could serve as a starting point for IT support

Research Questions

- 1) What is the state of research on the experimental approach of LS?
- 2) Practical view on LS
 - 2.1) What is the LS practitioners' understanding of the LS approach?
 - 2.2) How do founders implement aspects relevant to the LS approach?
- 3) What are implications and recommendations for the IT support of the entrepreneurial process?

Research approach



Research Approach Mixed Method Approach n=11 n=36 (incubator staff, (founders, product founders, LS expert) managers) 1 Literature 2 Conduct 3 Perform 4 Develop **Guidelines** Research **Interviews** Survey Conduct literature Develop guideline Develop Synthesize findings questionnaire based research Conductinterviews **Collect observations** on theory and Summarize findings Transcribe interviews Derive guidelines interviews Evaluate results Conduct pre-test Conductsurvey Evaluate results

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State of Research & Planning vs. Learning



State of Research

- Little published research on evaluating the validity of the LS approach
- Ladd (2016) still unpublished
 - could confirm testing/experimentation works
 - but no linear relationship between testing and success
 - too little but also too much testing is counterproductive

Planning

- Planning is beneficial, though more relevant for established firms (Brinckmann et al., 2010)
- Further **lower return** on planning **for** small firms due to more unstructured approach (Brinckmann et al., 2010)
- In highly dynamic environment, spend less or more focused time on planning (Gruber, 2007)

Experimentation/Learning

- Given lack of market or potential customer, prematurely planning limits flexibility necessary to succeed (Midler and Silberzahn, 2008)
- Focus on exploration/experimentation, incremental learning and adapt to uncertain environment

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Understanding Popularity and Success



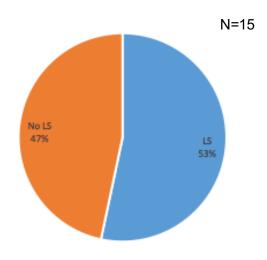
Popularity

Out of surveyed people

- 74% are familiar
- 66% try to apply it
- 100% of those applying it would recommend it to others

Success

Approaches of successful companies



Success being defined by

- Receiving institutional investments
- Being post product/market fit

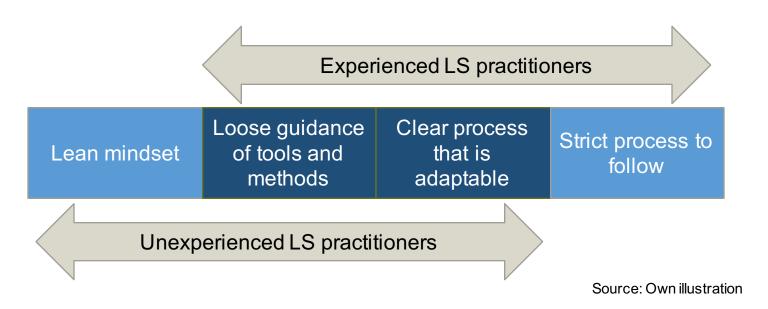
> No clear indication that successful startups rely more on LS (50% used it)

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Understanding Ambiguity about definition of LS



No clear and common understanding of what LS actually is

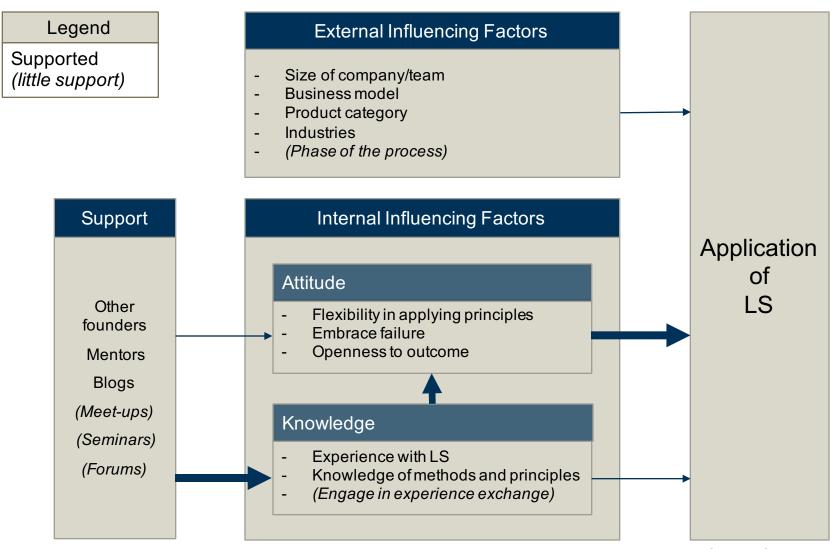


- Majority of respondents in line with moderate interpretation
- Continuum between mere mindset and strict process implies different expectations of possible support > Flexibility required

Understanding

Influencing factors on the application of LS



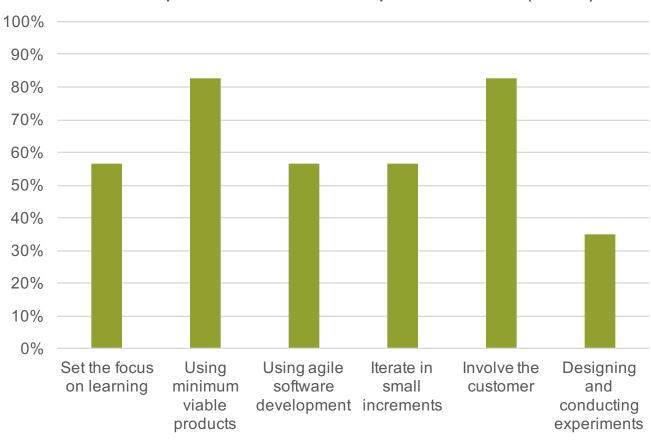


Source: Own illustration





Broad implementation of LS practitioners (n=23)

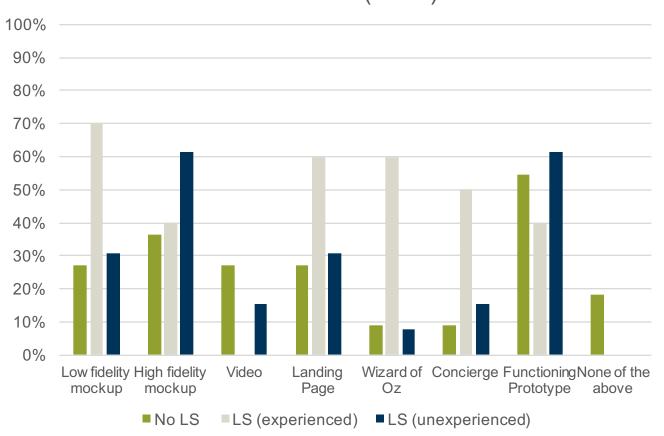


- Considered easy principles ("Using MVPs" and "Involving the customer") are mostly implemented
- Differentiating factor of running experiments has little support

The use of MVPs generally is not a differentiating factor





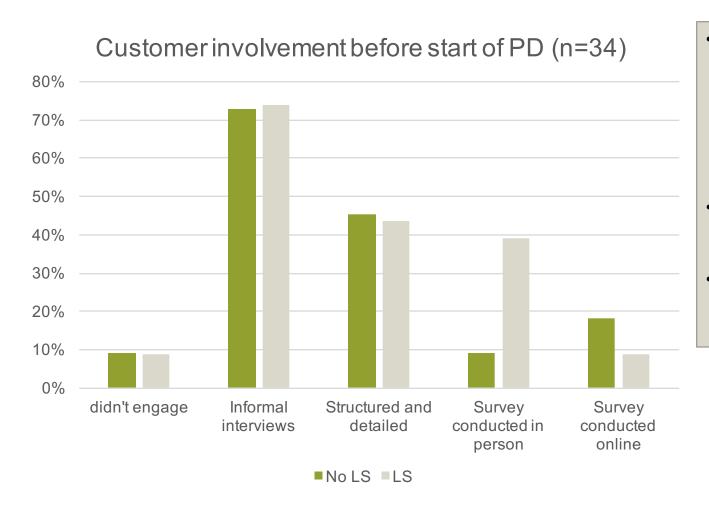


- No LS (73%) and LS (91%) majority tries to implement the MVP concept
- Differentiation becomes more clear on a deeper level of analysis
- LS experienced apply a broader spectrum of MVPs and engage earlier

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Customer Involvement generally not a differentiating factor

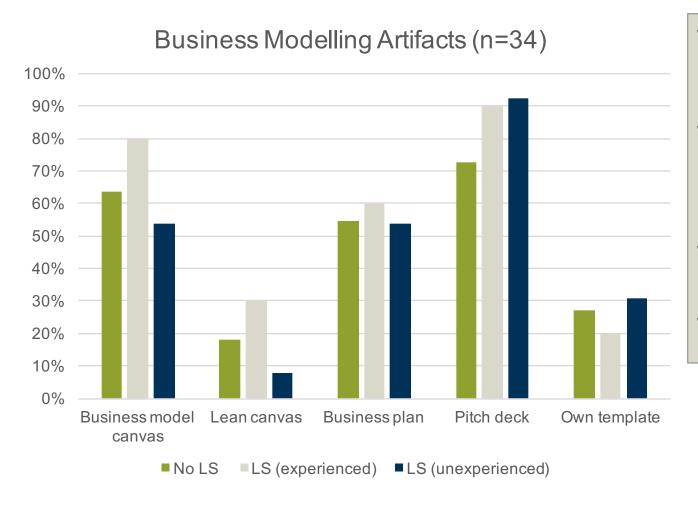




- Involvement before and after start of product development (PD) done by almost all participants > Not differentiating
- Overall focus on informal interviews
- LS use more structured approaches

Artifacts – Example for Business Modelling





- Multiple Artifacts used for different purposes
- Pitch deck is important and considered most useful
- BMC not differentiating for LS
- LS specific artifact found little support

Summary

Understanding and Implementation



Understanding

High popularity

LS is popular but not necessarily responsible for success

Positive Outcome

Applying LS creates a positively perceived outcome despite ambiguous understanding

Ambiguous understanding

Lack of common understanding results in diverse implementations

> LS seems not as instructive and clear in terms of how to implement it

Implementation

Little differentiation

On a high level of analysis little differentiation with regards to implementation, differentiation possible on a more detailed level

MVP

Cust. Inv.

Artifacts

Tools

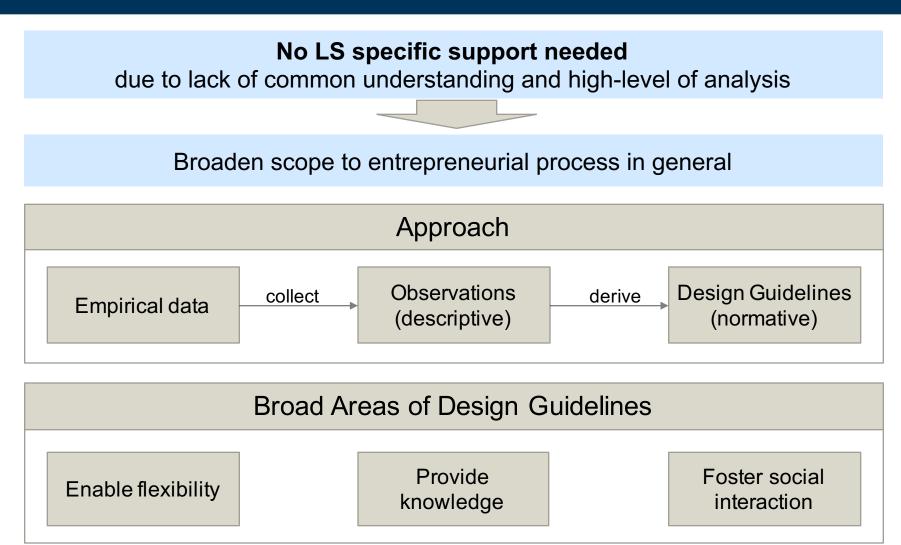
Lacking experience

Challenges most often refer to problems based on lack of experience and guidance

> How do you approach certain aspects is differentiating not what you do

Overall result and further approach





> More detailed design guidelines derived from collected observations (see next slides)

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Mapping of observations to design guidelines



General	3	O1 - Resource restrictions: Founders face resource restrictions and have only limited time available.		DG1 – Workflow integration: Integrate system usage into existing workflow to minimize the effort of using it.	
	7	O2 – Individuality: Each startup is individual and requires a high degree of flexibility with regards to the performed tasks and processed information.		DG2 – Contextual accessibility: Enable contextual accessibility of the knowledge base, i.e. where and when it is needed, to minimize the barrier and required effort of switching between learning and doing.	
	7	O3 – Founder initiative: Founders want and need to take the initiative and have the deciding power.		DG3 – Goal setting: Support setting goals and milestones collaboratively with stakeholders to create accountability but still achieve flexibility compared to a fixed defined process.	lity
Knowledge	5	O4 – Process knowledge: Founders often lack relevant knowledge about the entrepreneurial process and best practices.		DG4 – Structuring flexibility: Ensure flexibility and adaptability of the system, with regards to captured data, information and structuring capabilities to address the individuality of the startup.	Flexibility
	5	O5 – Tacit knowledge: Most valuable knowledge is often tacit and based on experience.		DG5 – Suggestion-based support: Support needs to remain on a suggestion basis. Control and final implementation needs to remain with founders to increase the acceptance of a support by not restricting the founder's freedom of action.	
	4	O6 – Knowledge sources: Information and knowledge is often spread across different sources and difficult to find.		DG6 – Medium gap: Enable bridging the medium gap between analog and digital tools to combine the benefits of both forms, e.g. ease of creation and interaction of analog forms with ability to share and collaborate across locations of digital forms. DG7 – Knowledge emergence: Enable the emergence of knowledge and best practices through the use of the system to minimize the effort of knowledge explication.	
	4	07 – Recurring knowledge: Certain problems are recurring between startups but not necessarily within a single startup.			
	3	08 – Knowledge creation: Certain knowledge is created fast or subject to change.			
Tools & Artifacts	5	O9 – Multiplicity of tools: Many potential tools are available, which requires assessment of suitability.		DG8 – Knowledge explication: Incentivize explication and sharing of knowledge to keep the knowledge base up-to-date with valid knowledge and thereby relevant for the founder.	dge
	6	O10 – Multiplicity of artifacts: Multitude of artifacts are created and used in the course of the entrepreneurial process. However, they are often only supported with generic tools that provide little structure.		DG9 – Knowledge base: Provide a shared knowledge base with relevant information for the entrepreneurial process (e.g. best practices for common processes, suggested tools for use cases, etc.) to compensate for the difference in knowledge and establish a common understanding.	Knowledg
	3	O11 – Artifact knowledge: Founders do not necessarily know how to effectively use certain artifacts.		DG10 – Knowledge adaptability: Enable the content of the knowledge base to be easily adaptable to account for the changing nature of information and knowledge.	
	5	O12 – Analog tools: Founders see value in analog tools, but it is difficult to keep them updated and synchronized with digital information.		DG11 – Share ability: Enable easy sharing of information with other stakeholders to lower the barrier of knowledge transfer and simplify the creation of a context for discussion.	
Social	9	O13 – Informal exchange: Exchange of knowledge and experience is often informal, i.e. through personal interaction and with little structure (between peers but also advisors/mentors).		DG12 – Social exchange: Incentivize social exchange and engagement between users to support relationship building and improve the knowledge transfer of tacit knowledge.	cial
	7	O14 – Expert access: Founders often lack access to experienced people like mentors/experts/etc.		DG13 – Expert identification: Simplify the identification and access to people with relevant knowledge and expertise to enhance the matching process and reduce the necessity for human intervention.	Social
	3	O15 – Sensitive information: Sensitive information needs to be handled and bears the fear of founders of revealing proprietary information.		DG14 – Trusting space: Create a space of trust and confidentiality by giving transparent access control to the data owner to support the willingness of users to share information.	

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Example Design Guidelines



O1 - Resource restrictions:

Founders face resource restrictions and have only limited time available.

DG2 – Workflow integration:

Integrate system usage into existing workflow to minimize the effort of using it.

Example Design Guidelines



O2 – Individuality:

Each startup is individual and requires high degree of flexibility with regards to the performed tasks and processed information.

O3 - Founder initiative:

Founders want and need to take the initiative and have the deciding power

DG5 - Suggestion-based support:

Support needs to remain on a suggestion basis. Control and final implementation needs to remain with founders to increase the acceptance of a support by not restricting the founder's freedom of action.

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Conclusion & Future Work





LS makes sense, but difficult to support

Potential for support of the entrepreneurial process

Enable flexibility

Provide knowledge

Connect people



Future work

Account for limitations of research

> Research incentive mechanisms

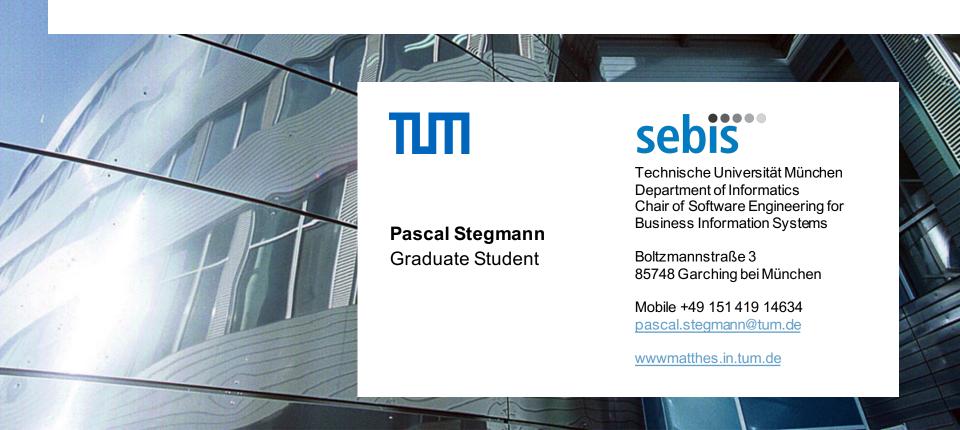
Identify stakeholders benefitting the most

Research technical solutions to proposed guidelines

Build and evaluate solution



Thank you! Questions?



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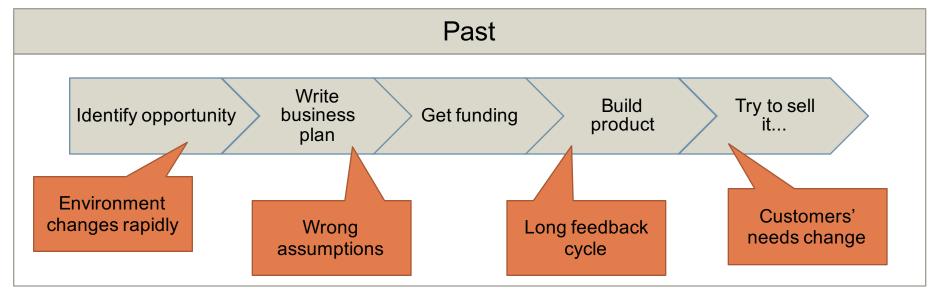
Appendix

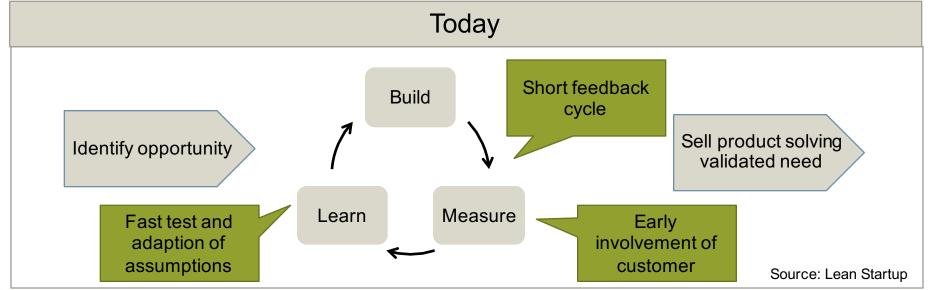
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Motivation

How to find a working business model?







State of Research & Foundation



State of Research

- Little published research on evaluating the validity of the LS approach
- Ladd (2016) still unpublished
 - could confirm testing/experimentation works
 - but no linear relationship between testing and success
 - too little but also too much testing is counterproductive

Foundational Concepts (based on Knight, 1921 and Sarasvathy, 2001)

Risk

Outcomes are enumerable and occur with a certain probability

VS.

Uncertainty

Outcomes are not knowable

Causation

Set a goal and plan the necessary steps and means to get there

VS.

Effectuation

Assess available means and combine them to a valuable product



Planning

- Planning is beneficial, though more relevant for established firms (Brinckmann et al., 2010)
- Further lower return on planning for small firms due to more unstructured approach (Brinckmann et al., 2010)
- In highly dynamic environment, spend less or more focused time on planning (Gruber, 2007)
- Assumption that prediction is to a certain degree possible

Learning

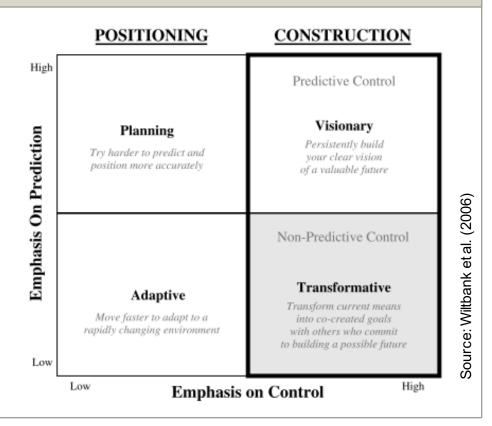
- Given lack of market or potential customer, prematurely planning limits flexibility necessary to succeed (Midler and Silberzahn, 2008)
- Focus on exploration/experimentation, incremental learning and adapt to uncertain environment

> Both ideas follow a **positioning approach**, i.e. taking the environment as given



Framework for strategies to deal with uncertainty (Wiltbank et al., 2006)

- Positioning: "to the degree that I can predict the future, I can control it"
- Construction: Prediction and control are independent
 - Visionary approach
 - Transformative approach (effectuation)



- > Iterative, experimental approach of LS is supported by research
- > Considering concept of effectuation, the notion of LS could put more emphasis on mindset than on adapting/reacting

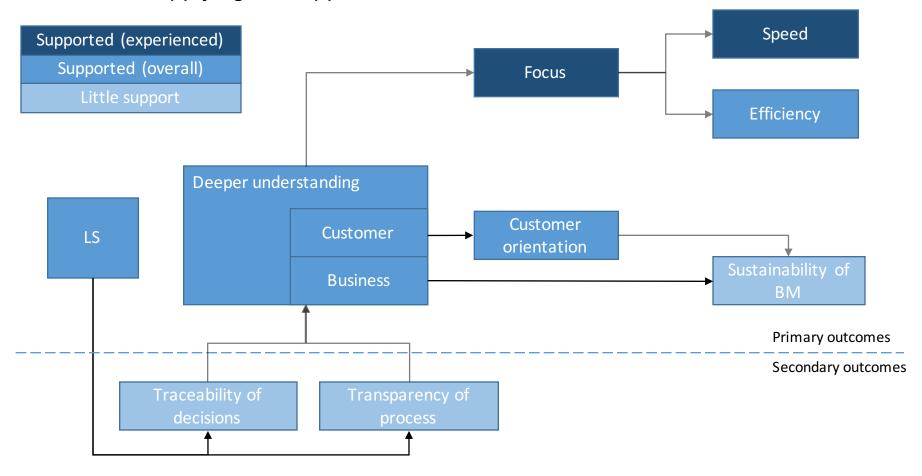
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Understanding

Perceived outcome of applying the LS approach



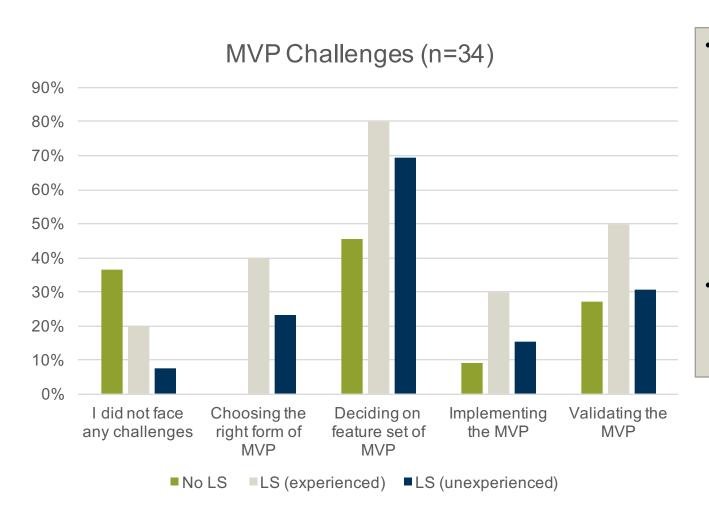
LS not necessarily responsible for the ultimate success but perceived and achieved outcomes of applying LS support its usefulness



Source: Own illustration

Implementation MVP Challenges

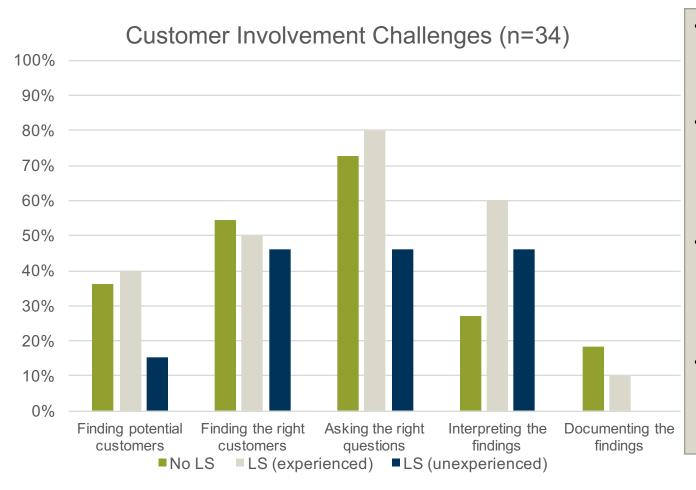




- Challenge with deciding on feature set and validating esp. voiced by experienced practitioners shows importance and awareness of possible impact
- In contrast, choosing the right form not recognized by No LS practitioners

Customer Involvement Challenges



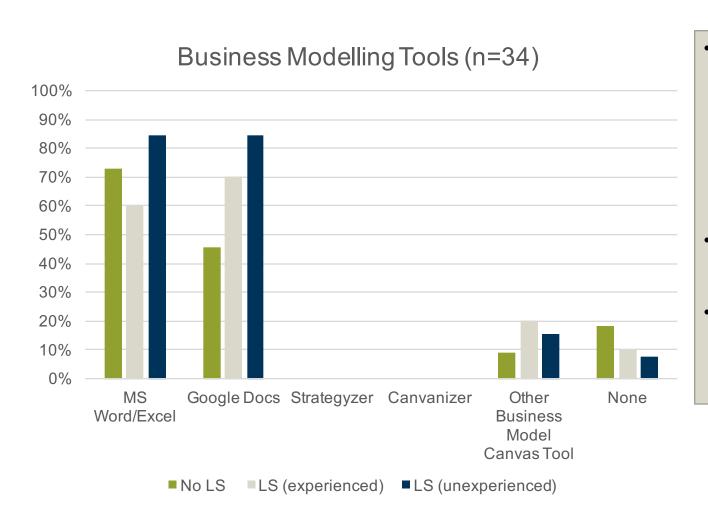


- Challenges are overall similar between groups
- Focusing on elicitation of the right information (asking and interpreting)
- Differences interpreted as lack of awareness of potential impact
- Further challenge of lacking accessibility to the right customers

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Tools – Example for Business Modelling





- Business modelling done in a very generic way with general purpose tools, like MS Word/Excel or Google Docs
- Prominent BMC tools not used at all
- Importance of analog tools, i.e. posters and print-out versions of artifacts