

Supplementary material to "Software development in startup companies: A systematic mapping study"

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1 Search strings

1.1 Database A - Compendex/Inspec (www.engineeringvillage2.org)

('early-stage firm' OR 'early-stage company' OR 'high-tech venture' OR 'high-tech ventures' OR 'high-tech start-up' OR 'high-tech start-ups' OR 'high-tech startups' OR 'high-tech startup' OR 'start-up company' OR 'start-up companies' OR 'startup company' OR 'startup companies' OR 'software startup' OR 'lean startup' OR 'lean start-up' OR 'lean startups' OR 'software startups' OR 'software package startups' OR 'software package start-up' OR 'software package start-ups' OR 'software package startup' OR 'IT start-ups' OR 'IT start-up' OR 'IT startup' OR 'IT startups' OR 'software start-up' OR 'software start-ups' OR 'software product startup' OR 'software product startups' OR 'software start up' OR 'web startup' OR 'web start-up' OR 'web startups' OR 'web start-ups' OR 'internet startup' OR 'internet start-up' OR 'internet startups' OR 'internet start-ups' OR 'mobile startup' OR 'mobile start-up' OR 'mobile startups' OR 'mobile start-ups') AND (develop* OR engineer* OR model* OR construct* OR implement* OR cod* OR creat* OR build*) AND (software OR product* OR service* OR process* OR methodolog* OR tool* OR method* OR practice* OR artifact* OR artefact* OR qualit* OR 'non-functional requirement' OR 'non-functional requirements' OR ilit* OR strateg*)

1.2 Database B - IEEE xplore (ieeexplore.ieee.org)

('early-stage firm' OR 'early-stage company' OR 'high-tech venture' OR 'high-tech ventures' OR 'start-up company' OR 'start-up companies' OR 'startup company' OR 'high-tech start-up' OR 'high-tech start-ups' OR 'high-tech startups' OR 'high-tech startup' OR 'startup companies' OR 'software startup' OR 'lean startup' OR 'lean start-up' OR 'lean startups' OR 'software startups' OR 'software package startups' OR 'software package start-up' OR 'software package start-ups' OR 'software package startup' OR 'IT start-ups' OR 'IT start-up' OR 'IT startup' OR 'IT startups' OR 'software start-up' OR 'software start-ups' OR 'software product startup' OR 'software product startups' OR 'software start up' OR 'web startup' OR 'web start-up' OR 'web startups' OR 'web start-ups' OR 'internet startup' OR 'internet start-up' OR 'internet startups' OR 'internet start-ups' OR 'mobile startup' OR 'mobile start-up' OR 'mobile startups' OR 'mobile start-ups') AND (development OR developing OR engineer OR engineering OR model OR construct* OR implement* OR cod* OR creat* OR build*) AND (software OR product OR products OR service OR services OR process OR processes OR artifact* OR artefact* OR quality OR qualities OR 'non-functional requirement' OR 'non-functional requirements' OR ilities OR methodology OR methodologies OR tool OR tools OR method OR methods OR practice OR practices OR strategy OR strategies)

1.3 Database C - Scopus (www.scopus.com)

ABS(('early-stage firm' OR 'early-stage company' OR 'high-tech venture' OR 'high-tech ventures' OR 'start-up company' OR 'start-up companies' OR 'high-tech start-up' OR 'high-tech start-ups' OR 'high-tech startups' OR

'high-tech startup' OR 'startup company' OR 'startup companies' OR 'software startup' OR 'lean startup' OR 'lean start-up' OR 'lean startups' OR 'software startups' OR 'software package startups' OR 'software package start-up' OR 'software package start-ups' OR 'software package startup' OR 'IT start-ups' OR 'IT start-up' OR 'IT startup' OR 'IT startups' OR 'software start-up' OR 'software start-ups' OR 'software product startup' OR 'software product startups' OR 'software start up' OR 'web startup' OR 'web start-up' OR 'web startups' OR 'web start-ups' OR 'internet startup' OR 'internet start-up' OR 'internet startups' OR 'internet start-ups' OR 'mobile startup' OR 'mobile start-up' OR 'mobile startups' OR 'mobile start-ups')AND (develop* OR engineer* OR model* OR construct* OR implement* OR cod* OR creat* OR build*) AND (software OR product* OR service* OR process* OR artifact* OR artefact* OR qualit* OR 'non-functional requirement' OR 'non-functional requirements' OR ilit* OR methodolog* OR tool* OR method* OR practice* OR strateg*)

1.4 Database D - ISI Web of Knowledge (wokinfo.com)

TS=((('early-stage firm' OR 'early-stage company' OR 'high-tech venture' OR 'high-tech ventures' OR 'start-up company' OR 'start-up companies' OR 'high-tech start-up' OR 'high-tech start-ups' OR 'high-tech startups' OR 'high-tech startup' OR 'startup company' OR 'startup companies' OR 'software startup' OR 'lean startup' OR 'lean start-up' OR 'lean startups' OR 'software startups' OR 'software package startups' OR 'software package start-up' OR 'software package start-ups' OR 'software package startup' OR 'IT start-ups' OR 'IT start-up' OR 'IT startup' OR 'IT startups' OR 'software start-up' OR 'software start-ups' OR 'software product startup' OR 'software product startups' OR 'software start up' OR 'web startup' OR 'web start-up' OR 'web startups' OR 'web start-ups' OR 'internet startup' OR 'internet start-up' OR 'internet startups' OR 'internet start-ups' OR 'mobile startup' OR 'mobile start-up' OR 'mobile startups' OR 'mobile start-ups')AND (develop* OR engineer* OR model* OR construct* OR implement* OR cod* OR creat* OR build*) AND (software OR product* OR service* OR process* OR artifact* OR artefact* OR qualit* OR 'non-functional requirement' OR 'non-functional requirements' OR ilit* OR methodolog* OR tool* OR method* OR practice* OR strateg*))

1.5 Database E - ACM Digital Library (dl.acm.org/advsearch.cfm)

((Abstract:(('early-stage firm' OR 'early-stage company' OR 'high-tech venture' OR 'high-tech ventures' OR 'start-up company' OR 'start-up companies' OR 'startup company' OR 'startup companies' OR 'software startup' OR 'lean startup' OR 'lean start-up' OR 'high-tech start-up' OR 'high-tech start-ups' OR 'high-tech startups' OR 'high-tech startup' OR 'lean startups' OR 'software startups' OR 'software package startups' OR 'software package start-up' OR 'software package start-ups' OR 'software package startup' OR 'IT start-ups' OR 'IT start-up' OR 'IT startup' OR 'IT startups' OR 'software start-up' OR 'software start-ups' OR 'software product startup' OR 'software product startups' OR 'software start up' OR 'web startup' OR 'web start-up' OR 'web startups' OR 'web start-ups' OR 'internet startup' OR 'internet start-up' OR 'internet startups' OR 'internet start-ups' OR 'mobile startup' OR 'mobile start-up' OR 'mobile startups' OR 'mobile start-ups')) AND (Abstract:(develop* OR engineer* OR model* OR construct* OR implement* OR cod* OR creat* OR build*)) AND (Abstract:(('software' OR product* OR service* OR process* OR methodolog* OR tool* OR method* OR practice* OR artifact* OR artefact* OR qualit* OR 'non-functional requirement' OR 'non-functional requirements' OR ilit* OR strateg*))))

1.6 Database F - Google Scholar (scholar.google.com)

('software startup' OR 'software startups')AND (develop* OR engineer* OR cod* OR creat*) AND (software OR product* OR process* OR methodolog* OR tool* OR method* OR practice* OR artifact* OR qualit* OR 'non-functional requirements' OR strateg*)

2 Rigor and Relevance

Table 1 shows the raw data of the rigor and relevance assessment applied on the 37 primary studies. Observe that the maximum possible value for rigor ($Ri = Ri1 + Ri2 + Ri3$) is 3, and for relevance ($Re = Re1 + Re2 + Re3$) is 4. The table is sorted by the sum of the rigor and relevance scores. The three studies by Coleman and O'Connor received the maximum score on both scientific rigor and industrial relevance. However, there are many studies with a score of 0 (11 zeros for rigor, 7 zeros for relevance).

Ref.	Ri1	Ri2	Ri3	Ri	Re1	Re2	Re3	Re4	Re
[9]	1.0	1.0	1.0	3.0	1.0	1.0	1.0	1.0	4.0
[8]	1.0	1.0	1.0	3.0	1.0	1.0	1.0	1.0	4.0
[10]	1.0	1.0	1.0	3.0	1.0	1.0	1.0	1.0	4.0
[5]	0.5	1.0	1.0	2.5	1.0	1.0	1.0	1.0	4.0
[17]	0.0	1.0	1.0	2.0	1.0	1.0	1.0	1.0	4.0
[16]	0.0	1.0	1.0	2.0	1.0	1.0	1.0	1.0	4.0
[13]	1.0	0.5	1.0	2.5	1.0	1.0	0.0	1.0	3.0
[6]	1.0	1.0	0.0	2.0	1.0	1.0	0.0	1.0	3.0
[21]	1.0	0.0	1.0	2.0	1.0	0.0	1.0	1.0	3.0
[20]	1.0	0.5	0.0	1.5	1.0	1.0	0.0	1.0	3.0
[29]	0.5	0.0	0.5	1.0	1.0	1.0	0.0	1.0	3.0
[32]	0.5	0.5	0.0	1.0	1.0	1.0	0.0	1.0	3.0
[40]	0.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	3.0
[38]	1.0	0.0	0.0	1.0	1.0	1.0	0.0	1.0	3.0
[36]	0.5	1.0	0.5	2.0	0.0	1.0	0.0	1.0	2.0
[26]	0.0	0.5	0.0	0.5	1.0	1.0	0.0	1.0	3.0
[33]	0.0	0.5	0.0	0.5	1.0	1.0	0.0	1.0	3.0
[22]	0.5	1.0	0.0	1.5	0.0	1.0	0.0	1.0	2.0
[27]	0.0	0.0	0.0	0.0	1.0	1.0	0.0	1.0	3.0
[39]	1.0	0.0	0.0	1.0	1.0	1.0	0.0	0.0	2.0
[14]	0.0	1.0	0.0	1.0	0.0	1.0	1.0	0.0	2.0
[12]	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0	2.0
[37]	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0	2.0
[24]	0.5	0.0	0.0	0.5	1.0	1.0	0.0	0.0	2.0
[30]	0.5	0.0	0.0	0.5	1.0	1.0	0.0	0.0	2.0
[43]	0.5	0.0	0.0	0.5	1.0	1.0	0.0	0.0	2.0
[1]	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	2.0
[31]	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	2.0
[34]	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	2.0
[25]	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	2.0
[23]	0.5	0.0	0.5	1.0	1.0	0.0	0.0	0.0	1.0
[11]	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	2.0
[18]	0.5	0.5	0.0	1.0	0.0	1.0	0.0	0.0	1.0
[19]	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	2.0
[2]	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	2.0
[15]	0.5	0.0	1.0	1.5	0.0	0.0	0.0	0.0	0.0
[35]	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
[3]	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
[4]	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
[28]	0.0	0.5	0.0	0.5	0.0	0.0	0.0	0.0	0.0
[41]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[42]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[7]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 1: Mapping Study - Rigor-relevance results

Rigor	Score	Research type	Score
3	10	Evaluation Research	10
2.5	8.33	Solution Proposal	6
2	6.67	Philosophical Papers	3
1.5	5	Opinion Papers	3
1	3.33	Experience Papers	3
.5	1.67		
0	0	Focus	Score
Relevance	Score	Software development	10
4	10	Process management	10
3	7.5	Tools and technology	8
2	5	Managerial/organizational	6
1	2.5		
0	0	Pertinence	Score
Publication age	Score	Full	10
[0, 2]	10	Partial	5
[3, 5]	8	Marginal	3
[6, 9]	6	Contribution	Score
[10, 14]	4	Model	10
[15, 40]	1	Theory	10
Publication type	Score	Framework/Methods	8
Journal Article	10	Guidelines	6
Conference Proceeding	7	Lesson learned	6
Magazine Article	6	Advice/Implications	6
		Tool	6

(a) Rigor, relevance, publication age and type

(b) Factors from the classification schema

Table 2: Conversion table for the scoring function

3 Ranking quantification

We illustrate here the process of ranking the selected studies. The final score has been computed by summing up contributions from eight dimensions: publication age and type, rigor, relevance, pertinence, contribution type, research type, and focus. For each dimension we defined conversion tables to quantify the factors, i.e. assigning higher scores to recent rigorous journal articles entirely devoted to the topic and presenting empirical results relevant to practitioners.

Table 2a shows the scores associated to factors rigor, relevance, publication age and type. Table 2b shows the scores assigned to factors stemming from the classification schema.

3.1 Primary studies overview

We extracted an one-line sentence which summarizes the content of each study and can be used by the reader to grasp its idea without reading the full text. A set of keywords have been assigned to each study during the initial stages of creation of the classification schema. The result of this process is presented in Table 3.

Author (year) Ref.	One-line contribution	Keywords
Coleman (2008) [10]	'[...] the previous experience of the person tasked with managing the development work is the prime influencer on the process a company initially uses. Other influencers include the market sector in which the company is operating, the style of management used and the size and scale of the company operations.'	Software Process, Process formation, Resources, Founder, XP, RUP, Agile Methodologies.

Table 3 – *Continued on next page*

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Author (year) Ref.	One-line contribution	Keywords
Coleman (2007) [9]	'Background of Software Development Manager was central to the initial process that a software company used.'	Software Process, Software Process Improvement, Grounded Theory, Factors Influencing Process.
Coleman (2008) [8]	'Our research found that SPI programmes are implemented reactively and many software managers are reluctant to implement SPI best practice models because of the associated costs.'	Software Process, Software Process Improvement, Grounded Theory, Factors Influencing Process.
Kajko-Mattsson (2008) [21]	By applying their process in a start-up they obtained good results: manage requirements, define development release, and control releases, improve quality.	Process improvement, Software Process, Release Management, Communication, Maintenance, Founder, early-stage, Improve Quality.
Hásel (2010) [17]	'[...] the competence profiles preferred by founders with innovative products differ from those preferred by founders with less innovative products.'	Founder Background, Founder Teams, IT competence, Team, Know-how.
Hanna (2010) [16]	The model presented in this paper offers a powerful tool for understanding the challenges of offshoring	Outsourcing, Offshore, Know-how, Management, decision-making.
Deakins(2005) [13]	'The dotcom development environment is highly volatile and requirements can change rapidly in response to competitor offerings and customer needs; customers are unreliable predictors of their future needs. Need of multi-skilled teams, adaptiveness over efficiency, rapid development, early-stage, experimentation, improvement based on customer'	Innovation, management, software Process, volatile environment, time-to-market, rapid Development,web-development.
Camel (1994) [5]	'The presence of several other time-to-completion accelerators appears to be weak in software startups: they did not fully use development methodologies, they made little for increasing use of software tools to increase productivity, weak risk analysis and project control'	Time-to-market, Package Software, Founder, Software Process, Tools.
Silva (2005) [12]	'We have successfully used all of XP practices, adopted most of them and even came up with some unique practices of our own.'	XP, Software Process, Agile methodologies, Practices, Adaption, Rapid Changes.
Midler (2008) [29]	'While exploitation provides vital short-term resources,exploration enhances the adaptation of the organization to a changing environment because it increases the variance of organizational activities'	Management, Multi-project, Software Process, Maturity, Learning, Internet, Founder, Uncertainty.
Taipale (2010) [34]	'Our workflow is predictable within acceptable variance and we can change direction of the business at any given time'	XP, Lean, Agile Methodologies, Software Process, Pivoting.
Chorev (2006) [6]	'Marketing is very important for success and is underestimated by product startups [...] core team competences is crucial as well'	Management, Software Process, Influencing Factors, Success, Marketing, early-stage, Team Competences.
Zettel (2001) [43]	'This paper proposes a lightweight software process for a specific application domain (i.e., database-and user-interface-oriented off-the-shelf e-business applications).'	Process Improvement, XP, Agile Methodologies, Lightweight process, IT, Project Management.
Jansen (2008) [20]	'Here, we describe two start-ups that have opportunistically and pragmatically developed their products, reusing functionality from others that they could never have built independently.'	Reuse, Product-line, Unstructured, Method, third-party, Founder, IT, COTS.

Table 3 – *Continued on next page*

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Author (year) Ref.	One-line contribution	Keywords
Sutton (2000) [33]	'Startups represent a software industry segment that has been mostly neglected in process studies, and it is possible that lessons drawn from start-ups also apply to other development organizations.'	Software Process, Process formation, early-stage, Time-to-market, Resources.
Heitlager (2007) [18]	'These companies start very ad-hoc, trying to overcome the uncertainties of market, team and platform. The biggest struggle for these companies is to survive with only scarce resources.' - This paper provides a matrix to analyze the dynamics of the maturity of product development.	Software Process, early-stage, Innovation, Internet, Process Improvement, Product Development.
Tingling (2007) [36]	'Small releases, on-site customer, continuous integration and refactoring were most vigorously advanced by management and adopted by developers. Paired programming on the other hand was culturally avoided.'	Rapid Development, XP, IT, Software Process, Internet, Practices, Agile methodologies.
Deias 2002) [14]	'We are enthusiastic about XP, and it is difficult for us to imagine a software project where we should not try to use XP, at least in the domain of Internet development.'	Software Process, Agile Methodologies, XP, Web Development, Risk Management, Project Management, Internet, Quality Assurance, Business, Founder, Customer relation.
Stanfill (2007) [31]	'To improve the chances of successfully adopting a new technological innovation and boosting entrepreneurial team performance, we propose an improved way to select suitable technologies, better timing for delivering market-driven requirements to product designers, and enhanced understanding of the implications of business and technical decisions with regards to impact on intellectual property.'	Team Performance, Market Feasibility, Management, Market-driven Requirements, early-stage, Founder, Technology-Driven decisions, IT.
Wood (2005) [38]	'Taken together, these strategies provide guidance to entrepreneurs, board members and business and engineering managers of startups for the effective use of Open Source Software.'	Open Source, Release, Software development, early-stage, Strategy, Internet, Cost-reduction, License.
Steenhuis (2008) [32]	'It is therefore unlikely that follower regions or nations are able to catch-up with the leading regions or nations unless the leading regions or nations enter the high portion of the S-curve, i.e. their economic growth slows down.'	Innovation, Technological Development, Critical Mass, Business, Economic Growth Internet, Business.
Yogendra (2002) [40]	'With the role of technology varying from 'enabler' to 'driver' of the business strategy, business and technology strategies need be in close alignment'	Management, Technology Driven Decisions, Planning, Monitoring, Quality.
Ambler (2002) [1]	'I wondered whether the rules of software development had also changed. Were we witnessing a paradigm shift in the way we develop software?'	Agile Methodologies, Web Development, RUP, Comparison, Paradigm-shift.
Crowne (2002) [11]	'A model for the evolution of product development from startup to maturity is provided, consisting of three phases: Startup ,Stabilization , Growth [...] Successful development of new software products is a key value driver for many startup companies.'	Software Process, Founder, Life-Cycle, Internet, Maturity.
Mater (2000) [27]	'Short-time-to market, fast growth, changing requirement are Entrepreneurs dream and Engineer nightmare'	Management, Business, Web Development, Quality, UX, Time-to-Market.
Kakati (2003) [22]	'Product uniqueness was shown not to be a significant factor in determining initial success, despite the tendency of high-tech firm to emphasize RnD and technological excellence'	Management, Success Criteria, Risk.
Kuvinka (2011) [24]	'Scrum involves many meetings, much planning overhead, and time-consuming team collaboration. Is it possible for a single writer to keep up?'	Management, Internet, Business, Agile Methodologies, early-stage, Scrum, Kanban.

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Author (year) Ref.	One-line contribution	Keywords
Su-Chuang (2007) [26]	' [...] a properly constructed value proposition is essential to the value creation process in e-business, and value is essential to the value creation process in e-business, and value co-production is the building blocks for value protection mechanism in network economy'	Value Proposition, Web Development, E-Business, Internet, Business, Value, Co-production.
Sau-ling Lai (2010) [25]	'Technology is not Alibaba's core competency (non tech-founder) [...] Customer First, employee next [...] Small is beautiful'	Web Development, Founder Background, Know-how, Value Proposition, Finance, Customer Relation, IT, Internet, Product Design, Business.
Mirel (2000) [30]	' [...] usability improvements depend on more than innovative and user-centered technical designs and implementations. Equally important for creating useful and usable software are the social and political forces that shape the development context.'	Organizational Factors, Usability, Political Support, Sociology, IT, Conflicts, Internet, Innovation.
Himola (2003) [19]	'On the basis of the results of this article, it is suggested that the improvement of product development lead time is one of the most important parameters in the software startup environment [...] all decisions related to product development are tradeoff situations.'	Time-to-market, Improvement, Business, Management, Finance.
Kim (2005) [23]	'Initial trust is regarded as a critical factor for many e-businesses to succeed in the business-to-customer e-markets, especially startups, because it creates initial relationships with customers.'	Trust, Customer Relation, Initial Trust, b2c, E-commerce, Internet, early-stage, Quality.
Wall (2001) [37]	'When money are scarce, OSS can help your business launch without breaking your budget'	Open Source, Tool, Java, Software development, License, Distributed Development, Cost-reduction.
Yoffie (1999) [39]	'That youthfulness also helps to explain why most start-ups fail: exuberance can only get you so far. Jim Clark and Marc Andreessen made a conscious choice to scale the company with a different type of person. They targeted maturity as well as technical expertise.'	Management, Internet, Web Development, Team Formation.
Bean (2005) [2]	'Smaller firms like Aperture Technologies Inc. are using wikis to brainstorm, track projects, write and edit documentation, and coordinate marketing. Software startups like Stata Laboratories Inc. are using wikis to lower teleconferencing costs for outsourced engineering to India!'	Open Source, Method, Tool, Internet, Communication, IT, Knowledge Management, Management.
Tanabian (2005) [35]	'Because of the small size of the firm, the amount of uncertainty of its business, and lack of financial strength, Many practices in place may appear to be in contradiction with guidelines for a productive and healthy job.'	Management, Founder, Job Design, Business, Team Performance, IT, Features, Workload, Internet.
Fayad (1997) [15]	'The process should be treated differently from startups to established companies [...] 'startup effect' in which new initiatives get much more highly qualified and motivated people than standard projects, and the idea of 'heroic efforts' '	Software Process, IT, Process Improvement, Developers Skill, Resources Scarcity, Internet, Motivation.
Blank (2013) [3]	'Customer development with lean startup combination are a good method to prevent fail in the software startup industries.'	Lean startup, customer development
Bosh (2013) [4]	'Developed a framework to work on multiple ideas. In addition to pivot or preserve the framework allow the team to put an idea on hold to move to another.'	Software startup companies, agile software development, lean principles, process support.

Table 3 – *Continued on next page*

Table 3 – Continued from previous page

Author (year) Ref.	One-line contribution	Keywords
May (2012) [28]	'Customer validation and optimization of the team settings are crucial. Beware also of technological and architecture decisions.'	Lean, Lean UX, Agile, Case Studies, Customer Development, prototyping, bootstrapping, startup, customer acquisition, entrepreneurship, testing, usability, research
Yoo (2012) [41]	'Startup companies require a new method for evaluation, in view of their constraints. This study investigated the key value drivers, and among others, important is a key talent in startups, who has know-how and technology competences to reduce trial-and-error in the development process.'	software startup companies, online gaming, media industry
Yu (2012) [42]	'Important factor to success are venture capital sources, technology sources taking in account operational risks.'	Motivation, Start-ups, Strategies
Clark (2012) [7]	'Two startups try to enter in the MDD market, but they focus on technology aspects without learning from potential customers. At the end they run out of cash.'	Computer simulation, Reactor startup, Software engineering

Table 3: Mapping study - One line content review

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