

Success Factors of Digital Entrepreneurship at the  
Macro-, Meso-, and Micro-Level:  
An Empirical Study of Digital Start-up Success from the  
Perspective of German Venture Capital Investors

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### ZUSAMMENFASSUNG

Die vorliegende Studie untersucht die Perspektive deutscher Risikokapitalgeber auf die Erfolgsfaktoren digitaler Start-ups und verfolgt dabei einen explorativen dreidimensionalen Forschungsansatz, der die Mikro-Perspektive auf die Unternehmerpersönlichkeit, die Makro-Perspektive auf den unternehmerischen Kontext und die Meso-Perspektive auf das Geschäftsmodell integriert. Damit bewegt sich die Studie in einem sehr jungen Feld der Entrepreneurshipforschung.

Dabei ist es ein Ziel dieses Forschungsvorhabens, die Bedeutung einzelner Merkmale je Forschungsebene für den wirtschaftlichen Erfolg eines digitalen Start-ups aus der Perspektive deutscher Risikokapitalgeber herauszuarbeiten. Weiterhin beleuchtet die Studie den Blick dieser Gruppe von Experten auf die Relevanz einer gesamten Gruppe von Merkmalen.

Zur Beantwortung der zentralen Forschungsfragen werden Methoden der qualitativen Forschung und ein Mixed-Methods-Ansatz verfolgt, wobei die Erhebung der quantitativen und qualitativen Primärdaten mittels theoriegeleiteter halbstrukturierter Experteninterviews erfolgte. So sind im Ergebnis insgesamt vier Artikel entstanden: drei Artikel, die sich auf die Darstellung der Ergebnisse der qualitativen Forschung je nur einer der drei genannten Forschungsperspektiven konzentrieren und ein vierter Artikel, der Methoden aus qualitativer und quantitativer Forschung kombiniert und ein integriertes, evidenzbasiertes Arbeitsmodell des wirtschaftlichen Erfolgs digitaler Start-ups aus der Perspektive deutscher Venture Capital (VC)-Investoren ableitet.

## 1. EINLEITUNG UND ZIELSETZUNG

Die Digitalisierung und die damit verbundenen technologischen Innovationen haben den Unternehmen neue Möglichkeiten der Wertschöpfung eröffnet und erfordern die Entwicklung neuer Geschäftsmodelle (Bouwman et al., 2019; Cosenz & Bivona, 2021; Dabić et al., 2021b; Hock-Doepgen et al., 2021). In der heutigen digitalen Wirtschaft generieren Unternehmen den Kundenwert nicht ausschließlich durch physische Aktivitäten, sondern schaffen Wert auf virtueller Ebene, z. B. durch Plattform-Geschäftsmodelle und andere Formen der digitalen Infrastruktur (Aloulou, 2019, S. 190-195). Folglich hat die Bedeutung des Geschäftsmodells, also des Wertschöpfungsmodells, zugenommen, wodurch sich das digitale Unternehmertum (E-Entrepreneurship) in mehrfacher Hinsicht vom traditionellen Unternehmertum unterscheidet, insbesondere im Bereich der immateriellen Vermögenswerte (Arlott et al., 2019, S. 4-8; Wirtz, 2019, S. 35-49).

Die meisten Gründungen im Bereich der digitalen Güter basieren letztlich fast ausschließlich auf der Rekombination von nicht-physischen Ressourcen oder der Erfindung von nicht-physischen Assets. Beschaffung, Produktion und Auslieferung digitaler Güter sind nicht mehr an die Verfügbarkeit von mehr oder weniger großen materiellen Ressourcen (Tangible Assets) gebunden. Entsprechend geringer sind die Initial-, Markteintritts- und Transaktionskosten und damit die Markteintrittsbarrieren. Dies erklärt häufig auch disruptive Effekte digitaler Geschäftsmodelle, da neue Akteure schneller in die Märkte der *klassischen Industrie* eindringen können, was die Wettbewerbsintensität und damit den Innovationsdruck in allen Bereichen der *Old Economy* erhöht.

Dennoch bleibt die Entrepreneurship-Forschung, den alten Mustern folgend, zumindest im deutschsprachigen Raum, vor allem an klassische Ansätze gebunden, die die Bedeutung persönlicher Merkmale betonen. Erst in jüngster Zeit hat auch der unternehmerische Kontext in der Forschung Beachtung gefunden, insbesondere in Bereichen mit politisch-beratendem Interesse (Alvedalen & Boschma, 2017; Malecki, 2018). Studien, die Aspekte auf der Geschäftsmodellebene untersuchen, gibt es demgegenüber nach wie vor nur wenige. Witt (2012) argumentiert zum Beispiel, dass die Entrepreneurship-Forschung die betriebswirtschaftliche Dimension von Start-ups weitgehend vernachlässigt.

Shepherd et al. (2019) bestätigen in ihrer systematischen Literaturübersicht die Dominanz der akteurzentrierten Forschung und schlagen vor, einen erweiterten Ansatz zu entwickeln, der sich

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vom traditionellen Monismus und Dualismus abhebt, indem er alle drei Perspektiven auf den unternehmerischen Erfolg integriert: Forschung bzgl. der Merkmale der unternehmerischen Persönlichkeit (Mikroperspektive), Forschung bzgl. des unternehmerischen Kontexts (Makroperspektive) und die Forschung bzgl. der Merkmale des Geschäftsmodells (Mesoperspektive). Die vorliegende Studie folgt diesem Aufruf, indem sie die Relevanz von Erfolgsmerkmalen für digitale Start-ups auf allen drei Ebenen aus der Perspektive deutscher Venture-Investoren untersucht. Basierend auf den systematischen Literaturübersichten von Köhn (2017) und Granz et al. (2020), die zu dem Schluss kommen, dass VC-Investoren ihre Investitionspraxis auf mehrdimensionale Entscheidungsmodelle zu stützen scheinen, können Venture-Investoren im vorliegenden Forschungskontext als gut informierte Experten angesehen werden.

Die vorliegende Studie stützt sich dabei auf empirische Primärforschung und verfolgt sowohl einen qualitativen als auch einen Mixed-Methods-Ansatz. So konzentrieren sich drei, der insgesamt vier entstandenen Artikel, auf je eine Forschungsperspektive und nutzen zur Beantwortung der folgenden Forschungsfragen einen qualitativen Ansatz:

Erstens: Inwieweit beeinflussen einzelne Merkmale je Forschungsebene den wirtschaftlichen Erfolg eines digitalen Start-ups aus der Perspektive deutscher Risikokapitalgeber?

Zweitens: Inwieweit unterscheiden sich Gruppen von Erfolgsmerkmalen (Mikro-, Makro- und Mesoebene) hinsichtlich ihres Beitrags zum wirtschaftlichen Erfolg digitaler Start-ups aus der Perspektive deutscher Risikokapitalgeber?

Die Studie auf der Mikroebene konzentriert sich auf die verschiedenen Eigenschaften, Einstellungen und Aktivitäten von Unternehmern hinsichtlich ihrer Bedeutung für den ökonomischen Erfolg. Eine zweite Studie untersucht die Erfolgsrelevanz von Faktoren auf der Makroebene, d.h., des unternehmerischen Ökosystems, das sich aus Institutionen wie Politik, Kultur, dem Zustand des Banken- und Investitionssektors, der technologischen Infrastruktur, Markteigenschaften und dem Entwicklungsstand des Humankapitals zusammensetzt. Eine dritte Studie untersucht die Mesoebene des unternehmerischen Erfolgs, indem sie sich auf die Bedeutung des Geschäftsmodells konzentriert.

Die durchgeführte quantitative Analyse der erhobenen Primärdaten über alle drei Forschungsebenen, bietet wiederum eine neue Perspektive auf das hier untersuchte Phänomen

und bildet, kombiniert mit einer qualitativen Inhaltsanalyse den Schwerpunkt des vierten Artikels. Dieses Mixed-Methods-Design spiegelt sich auch in den beiden Forschungsfragen wider:

Erstens: Welche Einzelfaktoren über alle drei Perspektiven (Mikro-, Makro- und Mesoperspektive) haben nach Ansicht deutscher VC-Investoren den größten Einfluss auf ihren Investitionserfolg und damit auf den Erfolg eines digitalen Start-ups?

Zweitens: Welche Faktorengruppe (Gesamtgruppe der Faktoren auf der Mikroebene, Gesamtgruppe der Faktoren auf der Makroebene, Gesamtgruppe der Faktoren auf der Mesoebene) ist aus Sicht deutscher VC-Investoren am relevantesten für die Erklärung des Investitionserfolgs und damit für den Erfolg eines digitalen Start-ups?

Diese genaue Unterscheidung hinsichtlich der angewandten Forschungsmethode und dem damit verbundenen Einfluss auf die Beantwortung der zentralen Forschungsfragen je Artikel, sind insofern von Bedeutung, als dass auf diese Weise der jeweilige Forschungsfokus noch einmal klar herausgestellt und die vielfältigen Analysemöglichkeiten der erhobenen Datenbasis bestmöglich genutzt werden.

## 2. DATENERHEBUNG

Die befragten Experten, d.h. deutsche VC-Investmentmanager, sind basierend auf der Mitgliederliste des Bundesverbands Digitale Wirtschaft (BVDW), darunter auch Start-up-Investoren mit einem Fokus auf digitale Unternehmen, identifiziert worden. Basierend auf dieser Liste von 725 (Stand 2018) potenziellen Experten und einem ersten Mailing per E-Mail oder einer Nachricht über das professionelle Online-Business-Netzwerk LinkedIn, konnten 77 Experten rekrutiert werden, die dann zwischen August 2018 und Februar 2019 interviewt wurden, hauptsächlich persönlich, telefonisch oder in Videokonferenzen. Die statistische Beschreibung der Stichprobe befindet sich in Anlage b.

Zur Beantwortung der gestellten Forschungsfragen wurde für jede Forschungsperspektive ein Referenzmodell operationalisiert und als Grundlage für die Datenerhebung durch leitfadengestützte Experteninterviews verwendet. Erstens das Gießen-Amsterdamer Modell als akteurzentriertes Modell (Rauch & Frese, 2000; Rauch & Frese, 2008). Zweitens, das Isenberg-Modell (2011) als ein Referenzmodell für den unternehmerischen Kontext. Drittens, der

Geschäftsmodellansatz von Osterwalder-Pigneur (Osterwalder & Pigneur, 2010) als ein Referenzmodell auf der Mesoebene.

Zunächst wurden die Experten nach der Relevanz einzelner Merkmale der Unternehmerpersönlichkeit für den Erfolg befragt. Zu diesem Zweck stellte die Forscherin den Befragten eine Liste von Merkmalen (vgl. Tab. 1 im Artikel zur Mikroperspektive) und zusätzliche Erklärungen auf einem Handout zur Verfügung. In einem zweiten Schritt bat die Forscherin die Experten, maximal drei Merkmale auszuwählen, die ihrer Meinung nach den größten Einfluss auf den Erfolg eines digitalen Start-ups haben, und so zu gewichten, dass die Summe der Gewichte 100% ergibt. Im letzten Schritt erläuterten die Experten ihre Entscheidung ausführlicher. Dieses Vorgehen wiederholte sich für die beiden weiteren Forschungsperspektiven in gleicher Weise. Der Interviewteil, der zur Erhebung der qualitativen Daten dient, ist dementsprechend auf der Grundlage der zuvor erhobenen quantitativen Daten strukturiert und konzentriert sich nicht auf die Gesamtheit aller Faktoren. Dieser Teil des Fragebogens entspricht somit einem Leitfadenterview. Die Listen der operationalisierten Merkmale auf der Makro- und der Mesoebene sind jeweils in Tab. 1 der entsprechenden Artikel zu finden.

Der zweite Teil des Interviews befasst sich mit der Datenerhebung hinsichtlich der wahrgenommenen Bedeutung einer gesamten Gruppe von Merkmalen. Grundlage hierfür waren die gesamten Merkmalsgruppen pro Forschungsperspektive (Akteur, Kontext und Geschäftsmodell), die bereits aus dem ersten Teil des Interviews bekannt waren. Dabei bat die Forscherin die Experten nun, die Erfolgsrelevanz einer gesamten Merkmalsgruppe zu bewerten und diese Entscheidung ebenfalls zu begründen. Neben diesen eigentlichen Forschungsdaten sind zudem statistische und leistungsbezogene Daten erhoben worden. Das leitfadengestützte Interview befindet sich in Anlage a und die Transkripte der 77 Experteninterviews in der digitalen Anlage g.

Die Analyse der insgesamt 731 gesammelten Aussagen folgte der strukturierenden qualitativen Inhaltsanalyse nach Mayring (2010). Der gewählte Ansatz ist deduktiv-induktiv: D.h., die Kategorien des inhaltsanalytischen Kategoriensystems wurden theoretisch abgeleitet (deduktiv), die Unterkategorien wurden aus dem Transkript entwickelt (induktiv). Der Analyseprozess erfolgte in drei Schritten: Nachdem die Transkripte im ersten Schritt in Kodiereinheiten (Segmente) unterteilt wurden, erfolgte im zweiten Schritt eine Testkodierung zur induktiven Entwicklung von Subkategorien. Schließlich wurden die Segmente nach der



Primärkodierung im dritten Schritt, dem theoriebasierten Kategoriensystem zugeordnet (deduktiv). Die Matrix mit den kodierten Aussagen und den Gewichtungen der Merkmale durch die Experten befindet sich in der digitalen Anlage i.

Zur Aufbereitung der quantitativen Daten wurden die Einzelfaktorengewichte, mit denen der jeweiligen Dimensionen multipliziert, um so die gewichtete Relevanz aller Einzelfaktoren zu erhalten. Schließlich wurden diese quantitativen Daten in einer deskriptiven Statistik dargestellt (siehe Tabelle 3 in Artikel 4). Die anschließende multiple Regressionsanalyse testet in einem vierstufigen Aufbau, inwieweit ein Zusammenhang zwischen den gewichteten Erfolgsfaktoren und den gewichteten Erfolgsfaktorengruppen (unabhängige Variablen) und den beiden erhobenen leistungsbezogenen Variablen (realisierter ROI und geschätzte Investitionserfolgsquote) besteht.

### 3. DATENANALYSE

Die Ergebnisse der qualitativen Inhaltsanalyse (Mayring, 2010) bilden je Forschungsperspektive zwei zentrale Merkmale heraus, die von den Experten als besonders Bedeutsam für den wirtschaftlichen Erfolg digitaler Start-ups angesehen werden: Im Kontext der Persönlichkeitsmerkmale sind *Motivation und unternehmerische Energie* sowie *Lernbereitschaft* (Anlage c), die beiden Merkmale, auf der Makroebene sind es die *Verfügbarkeit von Risikokapital* und *gut ausgebildeten Arbeitskräften* (Anlage d), während sich ein *überzeugendes Wertversprechen* und ein *plausibles Ertragsmodell* als am häufigsten genannte Merkmale eines digitalen Geschäftsmodells auf der Mesoebene herausgestellt haben (Anlage e). Darüber hinaus zeigen die Ergebnisse der qualitativen Inhaltsanalyse, dass die Experten die Bedeutung der gesamten Gruppe der Ökosystem-Merkmale als vergleichsweise gering einschätzen.

Das im vierten Artikel (Anlage f) verfolgte Mixed-Methods-Design beleuchtet die Ergebnisse der qualitativen Analysen der ersten drei Artikel noch einmal auf neue Weise. Die deskriptive Statistik der gewichteten Relevanz aller Einzelfaktoren, weist für das *produktspezifische Know-how* und das *überzeugende Nutzenversprechen* die höchsten Mittelwerte auf. Das Ergebnis der anschließenden vierstufigen multiplen Regression auf die beiden leistungsbezogenen abhängigen Variablen (realisierter ROI und die geschätzte Investitionserfolgsquote) liefern

jedoch Hinweise auf die erhöhte Bedeutung von *Teamführungsfähigkeiten* als immaterielle Ressource und der *Verfügbarkeit von Risikokapital* als materielle Ressource.

Auf der Grundlage dieses Ergebnisses konzentriert sich die anschließende qualitative Inhaltsanalyse, auf diese beiden Prädiktoren und stellt zum einen heraus, dass Führungskräfte über entsprechende Fähigkeiten verfügen müssen, um die notwendigen komplementären Kompetenzen der verschiedenen Teammitglieder zu integrieren. Zum anderen stellen die Experten bzgl. der Bedeutung des Faktors Verfügbarkeit von Risikokapital fest, dass diese Ressource erst zu einem späteren Zeitpunkt, nämlich in der Wachstumsphase, an Bedeutung gewinnt.

#### 4. DISKUSSION UND ZENTRALE ERGEBNISSE

Das wesentliche Ergebnis der qualitativen Inhaltsanalyse lässt sich als heuristisches Gesamtmodell zusammenfassen, das zeigt, dass die Gruppe der Persönlichkeitsmerkmale (Kriterien auf der Mikroebene) als am erfolgsrelevantesten angesehen wird. Im Besonderen werden hier Persönlichkeits- und Verhaltensmerkmale von Unternehmern, wie z.B. die unternehmerische Motivation und Energie sowie die Lernbereitschaft, als die relevantesten Merkmale für den Erfolg herausgearbeitet. Gerade in der Start-up-Phase eines digitalen Unternehmens zeichnet sich erfolgreiches Unternehmertum durch die Fähigkeit aus, die eigene Herangehensweise und Überzeugung regelmäßig zu hinterfragen, nicht nur wenn Fehler erkannt werden, sondern auch um Informationen und Einschätzungen von anderen zu berücksichtigen.

Die Gruppe der Kontextfaktoren (Merkmale des unternehmerischen Ökosystems) wird hingegen von den Experten als am wenigsten relevant angesehen, trotz der Bedeutung der Verfügbarkeit von Risikokapital und gut ausgebildeten Arbeitskräften im Speziellen. Darüber hinaus zeigen die Ergebnisse dieser Arbeit, dass, im Gegensatz zu den meisten qualitativen Studien zur Erfolgsfaktorenforschung, dass das Geschäftsmodell nicht als Schlüsselressource für den Erfolg eines digitalen Start-ups angesehen wird, ein frühes Konzept einer Geschäftsidee hingegen schon. Die Kommunikation und Interaktion der Gründerinnen und Gründer mit VC-Investoren in einem frühen Stadium, kann somit ein wertvolles Instrument für die kontinuierliche Weiterentwicklung der ursprünglichen Geschäftsidee sein.

Die multiple Regressionsanalyse der quantitativen Daten auf den realisierten ROI und die geschätzte Investitionserfolgsquote, als leistungsbezogene abhängige Variablen, zeigt hingegen im vierten Artikel, dass einzelne Komponenten des Geschäftsmodells und ganze Gruppen von Merkmalen (Mikro-, Makro- und Mesoebene) die geringste Relevanz für den Erfolg digitaler Start-ups zu haben scheinen. Stattdessen liefert diese Analyse einige Hinweise auf die Relevanz der Verfügbarkeit von Risikokapital als Kontextfaktor und der Relevanz von Teamführungsfähigkeiten als Persönlichkeitsmerkmal. Die qualitative Datenanalyse im Rahmen des Mixed-Methods-Ansatzes zeigt insbesondere, dass während des Gründungsprozesses die Vielfalt und Komplementarität eines Gründerteams in Bezug auf Kreativität und Fähigkeiten eine Voraussetzung für den späteren Erfolg ist. Die Bedeutung von Kapitalzuführungen zeigt sich hingegen erst in späteren Phasen, um dem Unternehmen zu Wachstum und Skalierung in größerem Umfang zu verhelfen als ohne externe Finanzierung.

Die Frage ist jedoch, ob VC-Investoren den Einfluss ausgewählter Einzelfaktoren und Persönlichkeitsfaktoren im Gesamten richtig einschätzen. Der Widerspruch zwischen den Ergebnissen der multiplen Regression und der vergleichsweise hohen Gewichtung von Merkmalen wie *produktspezifisches Know-how* (Mikro-Ebenen-Faktor) oder einem *überzeugenden Nutzenversprechen* (Meso-Ebenen-Faktor), als Ergebnis der deskriptiven Statistik, könnte auf eine Voreingenommenheit der VC-Investoren (Investoren Bias) hinweisen.

Zusammenfassend lässt sich sagen, dass auch Praktiker, wie z. B. Risikokapitalgeber, die Unternehmerpersönlichkeit als treibende Kraft des Start-up Erfolgs ansehen, während andere Faktoren als Hygienefaktoren wahrgenommen werden, d. h. als Faktoren, die unterstützend, aber nicht wesentlich sind. Damit bietet diese Studie eine wertvolle Perspektive, die in der aktuellen Literatur bislang wenig Beachtung findet und darüber hinaus einen Mehrwert für Forscher und Praktiker hinsichtlich der Berücksichtigung von Schwerpunkten im impliziten oder expliziten Bewertungsmodell deutscher VC-Investoren.

## 5. AUSBLICK

Diese explorative Mixed-Methods-Studie hat mindestens drei Stärken, die sich auf Forscher und Praktiker auswirken. Erstens verwendet diese Studie eine multitheoretische Perspektive, indem sie die Mikro-, Makro- und Mesoebene, als die drei wichtigsten Entrepreneurship-Forschungsperspektiven, einbezieht. In diesem Sinne bietet sie eine umfassendere Perspektive auf unternehmerische Aktivitäten als frühere Studien. Zweitens bietet diese Untersuchung eine wichtige externe Perspektive auf das digitale Unternehmertum in der Start-up-Szene. Die befragten Experten sind nicht nur Beobachter, die Gründer, Geschäftsmodelle und das Umfeld von Start-ups analysieren, sondern auch Praktiker, die finanzielle Risiken eingehen. Drittens ermöglicht die Triangulation von qualitativen und quantitativen Daten die Entwicklung eines evidenzbasierten Arbeitsmodells zur Einschätzung des Erfolgs digitaler Start-ups.

Die vorgestellte empirische Evidenz deutet jedoch lediglich darauf hin, dass es eine gewisse kognitive Verzerrung bei der Einschätzung von unternehmerischen Erfolgsfaktoren durch VC-Investoren und deren tatsächlicher Relevanz für den Investitionserfolg zu geben scheint. Es ist zu beachten, dass die geringe Erklärungskraft des Regressionsmodells nicht mehr als einen möglichen ersten Hinweis auf dieses Phänomen liefert. Mehr Daten und ein anderes Forschungsdesign könnten für eine eingehende Untersuchung einzelner Modellkomponenten in Folgestudien geeignet sein.

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## 7. ANLAGENVERZEICHNIS

### Anlagen in gedrucktem Format

- a. Leitfadeninterview
- b. Deskriptive Statistik der Stichprobe
- c. Artikel 1 zur Mikroperspektive

Schumacher, N. Success Factors of Digital Start-ups - A Qualitative Analysis of the Entrepreneurial Personality from the Perspective of German Venture Investors. Vorbehaltlich akzeptiert von Dabić, M. & Kraus, S. (Eds.) für das Handbuch De Gruyter Handbook of SME Entrepreneurship
- d. Artikel 2 zur Makroperspektive

Schumacher, N. (2022). The relevance of entrepreneurship ecosystems for start-up success: a venture capital perspective. In S. Baumann (Ed.), Handbook on Digital Business Ecosystems: Strategies, Platforms, Technologies, Governance and Societal Challenges (pp. 109–125). Edward Elgar: Cheltenham.
- e. Artikel 3 zur Mesoperspektive

Schumacher, N. (2022). Can Business Model Components Explain Digital Start-up Success? A Qualitative Analysis of the Business Models of Start-ups from the Perspective of German Venture Investors. Economic Thought and Practice (EMIP), 31(1), 81-98. <https://doi.org/10.17818/EMIP/2022/1.4>
- f. Artikel 4 zur integrierten Perspektive

Schumacher, N. (2022). The German Venture Investors' Perspective on Success Factors of Digital Start-ups: A Mixed-Methods Approach. International Journal of Business and Management, 17(5), 1-12. <https://doi.org/10.5539/ijbm.v17n5p1>

### Anlagen in digitalem Format

- g. Interviewtranskripte (digitale Anlage)
- h. Codierleitfaden (digitale Anlage)
- i. Aufbereitete qualitative Daten (digitale Anlage)
- j. Aufbereitete quantitative Daten (digitale Anlage)
- k. SPSS Statistics-Datendatei (digitale Anlage)

## a. LEITFADENINTERVIEW

### *Einleitungsfragen*

*E1 (Filterfrage):* Sind Sie in Ihrer derzeitigen Position beteiligt an oder verantwortlich für die Entscheidung von Investitionen, Bewilligungen von Fördergeldern oder sonstiger Unterstützung von Start-ups?

Ja / Nein

*E2:* Wie lange sind Sie in diesem Entscheidungskontext tätig?

Jahre

*E3:* Wie hoch ist das jährliche Vermögen, das Sie durchschnittlich in den letzten drei Jahren verwaltet haben (Assets under Management (AuM))? Unabhängig von der tatsächlich investierten Summe.

Betrag (in TEUR)

*E4:* Was denken Sie: Zu wieviel Prozent haben Sie im Durchschnitt der letzten Jahre mit der Einschätzung des Erfolgs von Start-ups richtig gelegen?

Prozentsatz

### *Vorspann*

Diese Befragung untersucht die Erfolgsfaktoren digitalen Unternehmertums, also von Start-ups und ihren Gründern, deren Geschäftsidee bzw. -model auf digitalen Systemen bzw. Anwendungen basiert. Diese digitalen Systeme bzw. Anwendungen bilden den Kern der Wertschöpfung des Gründungsunternehmens. Ganz gleich, ob es sich um eine Leistung, ein Produkt oder einen Dienst handelt. Bitte beantworten Sie also folgende Fragen immer aus der Perspektive digitaler Start-ups.



**Frage 1: Persönlichkeitsfaktoren**

1a. Aus Ihrer Erfahrung: Welche der folgenden Persönlichkeitseigenschaften trägt wesentlich zum Unternehmenserfolg bei? Nennen sie bitte die drei Wichtigsten und deren Erfolgsrelevanz in Prozent? (Interview-Anweisung: max. 100%)

<i>Faktor</i>	<i>Prozent</i>
Ausbildungshintergrund	
Berufs- und Branchenerfahrung	
Produktspezifisches Knowhow	
Motivation und unternehmerische Energie	
Organisationsfähigkeiten	
Teamführungsfähigkeiten	
Strategisches Denken	
Lernbereitschaft	

1b. Gibt es einen anderen Faktor, der nicht genannt wurde, aber erfolgsrelevant ist?

Ja / Nein

Falls ja, welcher ist das und wie hoch schätzen Sie dessen Erfolgsbeitrag?

<i>Faktor</i>	<i>Prozent</i>

Ergebnisse der Prozentzahlen in Frage a) und b) max. 100% - Falls höher, Korrektur der Einschätzung einfordern, falls niedriger fragen:

1c. Alle bisherigen Nennungen ergeben zusammen keine 100%. Gibt es noch einen weiteren relevanten Faktor, oder handelt es sich um eine Menge von Einzelfaktoren, von denen keiner wirklich relevant ist, also sozusagen um eine nicht-beobachtbare Restgröße?

<i>Faktor</i>	<i>Prozent</i>

1d. Wie wirkt Ihrer Meinung nach der von Ihnen genannte wichtigste Faktor auf den Erfolg des Start-ups? Statement:

**Frage 2: Kontextfaktoren**

2a. Aus Ihrer Erfahrung: Welche der folgenden Kontextfaktoren tragen wesentlich zum Unternehmenserfolg bei? Nennen sie bitte die drei Wichtigsten und deren Erfolgsrelevanz in Prozent? (Interview-Anweisung: max. 100%)

<i>Faktor</i>	<i>Prozent</i>
Verfügbarkeit von Venture bzw. Gründungskapital (Venture Capital und Private Equity)	
Unterstützung durch die Politik (wie z. B. Steuererleichterungen, regulatorische Erleichterungen, Zugang zu öffentlichen Institutionen z. B. im Bereich Forschung, Förderprogramme von Bund und Ländern z.B. EXIST-Gelder, BAFA-INVEST-Zuschuss für Wagniskapital, etc.)	
Unternehmerkultur wie z. B. gesellschaftliche Achtung von Unternehmertum, Innovations- und Experimentierfreude, etc.)	
Verfügbarkeit von start-up-spezifischen Beratungen und Infrastruktur (z. B. Steuer- und Unternehmensberater, Infrastruktur wie z. B. Breitband-Internet, Gründercluster, etc.)	
Verfügbarkeit von gut ausgebildeten Mitarbeitern	
Inländischer Markt, der aufnahmefähig ist für innovative Produkte bzw. groß genug ist, dass Unternehmen zunächst ausreichend im Inland wachsen können, bevor sie das Risiko der Internationalisierung eingehen müssen.	

2b. Gibt es einen anderen Faktor, der nicht genannt wurde, aber erfolgsrelevant ist?

Ja / Nein

Falls ja, welcher ist das und wie hoch schätzen Sie dessen Erfolgsbeitrag?

<i>Faktor</i>	<i>Prozent</i>

Ergebnisse der Prozentzahlen mit Frage a) und b) max. 100% - Falls höher, Korrektur der Einschätzung einfordern, falls niedriger fragen:

2c. Alle bisherigen Nennungen ergeben zusammen keine 100%. Gibt es noch einen weiteren relevanten Faktor, oder handelt es sich um eine Menge von Einzelfaktoren, von denen keiner wirklich relevant ist, also sozusagen um eine nicht-beobachtbare Restgröße?

<i>Faktor</i>	<i>Prozent</i>

2d. Wie wirkt Ihrer Meinung nach der von Ihnen genannte wichtigste Faktor auf den Erfolg des Start-ups? Statement:

**Frage 3: Unternehmensbezogene Faktoren**

3a. Aus Ihrer Erfahrung: Welche der folgenden unternehmensbezogenen Faktoren tragen wesentlich zum Unternehmenserfolg bei? Nennen Sie bitte die drei Wichtigsten und deren Erfolgsrelevanz in Prozent? (Interview-Anweisung: max. 100%)

<i>Faktor</i>	<i>Prozent</i>
Verfügbarkeit von strategischen Lieferanten bzw. Key Partners (z.B. die Vermieter privater Unterkünfte für AirBnB, Filmproduktionen für Anbieter digitaler Streaming-Dienste, Bücher und eBooks für amazon und co.)	
Verfügbarkeit von Schlüsselressourcen, also Ressourcen, die für die Geschäftsidee/das Geschäftsmodell zentral sind (z.B. Maschinen, Anlagen, Informationstechnologie, Produktionstechnologie, Logistik, Materialien, Rohstoffe oder Kaufteile und der Zugriff darauf, Beschäftigte und deren Know-how (Kompetenzen und Erfahrungen) oder Engagement, Daten und Informationen, Finanzmittel, Rechte, Patente, Lizenzen, Marken)	
Überzeugendes Nutzenversprechen des Dienstes/Produktes/Angebots	
Plausibles Konzept der Marktsegmentierung nach Kundentypen und der Kundenansprache (Marketing- und Verkaufskanäle)	
Detaillierte und plausible Kalkulation von Umsatz, Kosten und Gewinn (Erfolgs- und Finanzplanung)	

## LEITFADENINTERVIEW

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Detaillierte und plausible Umsetzungsplanung/ Unternehmensentwicklungsplanung	
Plausibles Umsatzströme Modell, also ein Modell bzw. eine Vorstellung darüber, für welchen Nutzen der Kunde wieviel zahlen wird und welche weiteren Umsatzquellen in naher Zukunft entwickelt werden können mit welchen Umsatzbeiträgen.	

3b. Gibt es einen anderen Faktor, der nicht genannt wurde, aber erfolgsrelevant ist?

Ja / Nein

Falls ja, welcher ist das und wie hoch schätzen Sie dessen Erfolgsbeitrag?

<i>Faktor</i>	<i>Prozent</i>

Ergebnisse der Prozentzahlen mit Frage a) und b) max. 100% - Falls höher, Korrektur der Einschätzung einfordern, falls niedriger fragen:

3c. Alle bisherigen Nennungen ergeben zusammen keine 100%. Gibt es noch einen weiteren relevanten Faktor, oder handelt es sich um eine Menge von Einzelfaktoren, von denen keiner wirklich relevant ist, also sozusagen um eine nicht-beobachtbare Restgröße?

<i>Faktor</i>	<i>Prozent</i>

3d. Wie wirkt Ihrer Meinung nach der von Ihnen genannte wichtigste Faktor auf den Erfolg des Start-ups? Statement:

**Frage 4: Gewichtung der Faktorengruppen**

4a. Wie hoch schätzen Sie den Erfolgsbeitrag der einzelnen Faktorengruppen in Prozent ein?

(Interview-Anweisung: max. 100%)

<i>Faktorengruppe</i>	<i>Prozent</i>
Persönlichkeitseigenschaften	
Kontextfaktoren	
Unternehmensfaktoren	

4b. Gibt es eine andere Faktorgruppe, der nicht genannt wurde, aber erfolgsrelevant ist?

Ja / Nein

Falls ja, welche ist das und wie hoch schätzen Sie deren Erfolgsbeitrag?

<i>Faktor</i>	<i>Prozent</i>

4c. Wie wirkt Ihrer Meinung nach die von Ihnen genannte wichtigste Faktorgruppe auf den Erfolg des Start-ups? (Interview-Anweisung: intelligent nachfragen, nicht mit einem Satz zufriedengeben). Statement:

***Statistik***

S1: Job-Titel/Position

Text

S2: Berufserfahrung mit Start-ups

in Jahren

S3: Geschlecht

m/w/d

S4: Durchschnittliches jährliches Investment der letzten drei Jahre

Betrag (in TEUR)

S5: Wie hoch war Ihr Return on Investment im Durchschnitt der letzten drei Jahre?

(Wertveränderungen durch Exits oder durch dritte dokumentierte Neubewertungen  
inbegriffen)

Prozent

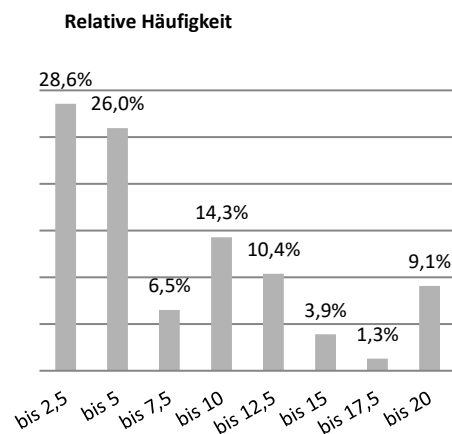
S6: Wie ist Ihre Erwartungshaltung als Investor? Welche durchschnittliche jährliche Rendite  
streben Sie an?

Prozent

**b. DESKRIPTIVE STATISTIK DER STICHPROBE**

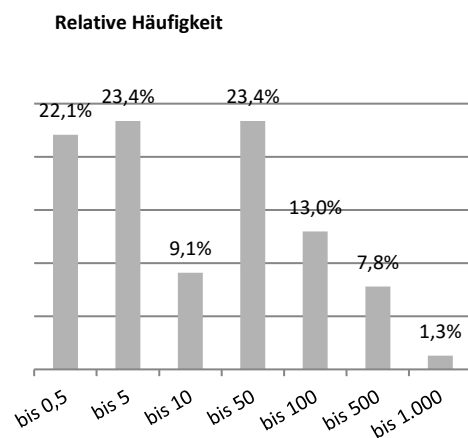
*E2:* Wie lange sind Sie bereits beteiligt an oder verantwortlich für die Entscheidung von Investitionen, Bewilligungen von Fördergeldern oder sonstiger Unterstützung von Start-ups? (in Jahren; N = 77)

Intervall- klassen (Jahre)	relative Häufigkeit	kumulierte Häufigkeit	Lage- parameter	Jahre
bis 2,5	28,6%	28,6%	Mittelwert	7,0
bis 5	26,0%	54,5%	Median	5,0
bis 7,5	6,5%	61,0%	Spannweite	19,5
bis 10	14,3%	75,3%	Stand. Abw.	5,7
bis 12,5	10,4%	85,7%		
bis 15	3,9%	89,6%		
bis 17,5	1,3%	90,9%		
bis 20	9,1%	100,0%		



*E3:* Wie hoch ist das jährliche Vermögen, das Sie durchschnittlich in den letzten drei Jahren verwaltet haben (Assets under Management (AuM))? Unabhängig von der tatsächlich investierten Summe. (in Mio. EUR; N = 77)

Intervall- klassen (EURm)	relative Häufigkeit	kumulierte Häufigkeit	Lage- parameter	EURm
bis 0,5	22,08%	22,08%	Mittelwert	53
bis 5	23,38%	45,45%	Median	10
bis 10	9,09%	54,55%	Spannweite	999
bis 50	23,38%	77,92%	Stand. Abw.	139
bis 100	12,99%	90,91%		
bis 500	7,79%	98,70%		
bis 1.000	1,30%	100,00%		

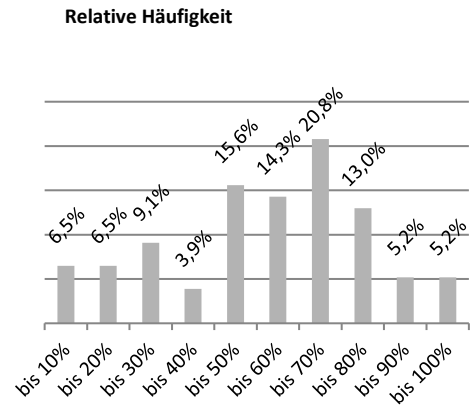


## DESKRIPTIVE STATISTIK DER STICHPROBE

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E4: Was denken Sie: Zu wieviel Prozent haben Sie im Durchschnitt der letzten Jahre mit der Einschätzung des Erfolgs von Start-ups richtig gelegen? (in Prozent; N = 77)

Intervall- klassen (Prozent)	relative Häufigkeit	kumulierte Häufigkeit	Lage- parameter	Prozent
bis 10%	6,5%	6,5%	Mittelwert	56,1%
bis 20%	6,5%	13,0%	Median	60,0%
bis 30%	9,1%	22,1%	Spannweite	100,0%
bis 40%	3,9%	26,0%	Stand. Abw.	23,9%
bis 50%	15,6%	41,6%		
bis 60%	14,3%	55,8%		
bis 70%	20,8%	76,6%		
bis 80%	13,0%	89,6%		
bis 90%	5,2%	94,8%		
bis 100%	5,2%	100,0%		



S1: Job-Titel/Position (N = 77)

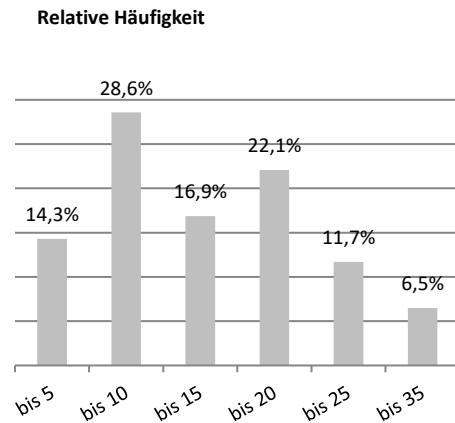
Klassen	relative Häufigkeit	kumulierte Häufigkeit
others	5,2%	5,2%
Analyst (mit Investitionsverantwortlichkeit)	5,2%	10,4%
CEO	11,7%	22,1%
Department Head	11,7%	33,8%
Partner / Managing Partner	16,9%	50,6%
Investment Director / Manager	22,1%	72,7%
Angel Investor	27,3%	100,0%



## DESKRIPTIVE STATISTIK DER STICHPROBE

### S2: Berufserfahrung mit Start-ups (in Jahren; N = 77)

Intervall- klassen (Jahre)	relative Häufigkeit	kumulierte Häufigkeit	Lage- parameter	Jahre
bis 5	14,29%	14,29%	Mittelwert	13,8
bis 10	28,57%	42,86%	Median	15,0
bis 15	16,88%	59,74%	Spannweite	34,5
bis 20	22,08%	81,82%	Stand. Abw.	7,8
bis 25	11,69%	93,51%		
bis 35	6,49%	100,00%		

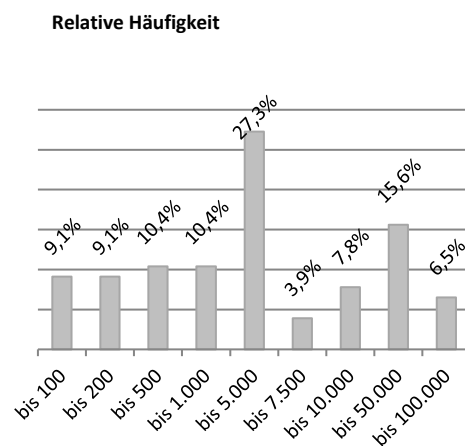


### S3: Geschlecht (m/w/d) (N = 77)

Klassen	relative Häufigkeit	kumulierte Häufigkeit
männlich	92,2%	92,2%
weiblich	7,8%	100,0%
divers	0,0%	100,0%

### S4: Durchschnittliches jährliches Investment der letzten drei Jahre (in TEUR; N = 77)

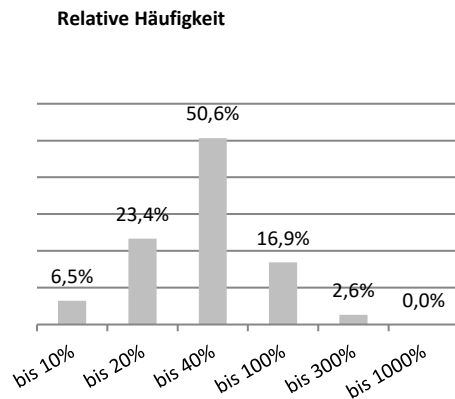
Intervall- klassen (TEUR)	relative Häufigkeit	kumulierte Häufigkeit	Lage- parameter	TEUR
bis 100	9,1%	9,1%	Mittelwert	10.237,6
bis 200	9,1%	18,2%	Median	2.000,0
bis 500	10,4%	28,6%	Spannweite	100.000,0
bis 1000	10,4%	39,0%	Stand. Abw.	19.178,93
bis 5.000	27,3%	66,2%		
bis 7.500	3,9%	70,1%		
bis 10.000	7,8%	77,9%		
bis 50.000	15,6%	93,5%		
bis 100.000	6,5%	100,0%		



## DESKRIPTIVE STATISTIK DER STICHPROBE

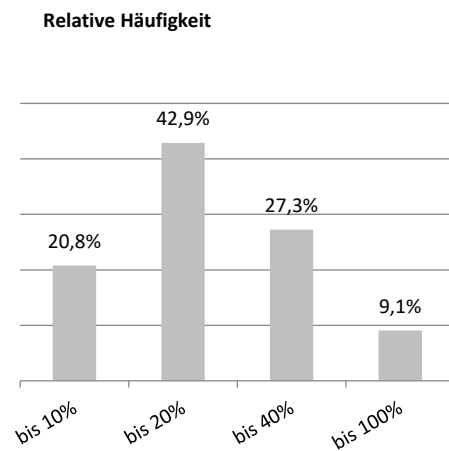
S5: Wie hoch war Ihr Return on Investment im Durchschnitt der letzten drei Jahre?  
 (Wertveränderungen durch Exits oder durch dritte dokumentierte Neubewertungen  
 inbegriffen) (in Prozent; N = 77)

Intervall- klassen (Prozent)	relative Häufigkeit	kumulierte Häufigkeit	Lage- parameter	Prozent
bis 10%	6,5%	6,5%	Mittelwert	35,7%
bis 20%	23,4%	29,9%	Median	25,0%
bis 40%	50,6%	80,5%	Spannweite	290,0%
bis 100%	16,9%	97,4%	Stand. Abw.	37,4%
bis 300%	2,6%	100,0%		
bis 1000%	0,0%	100,0%		



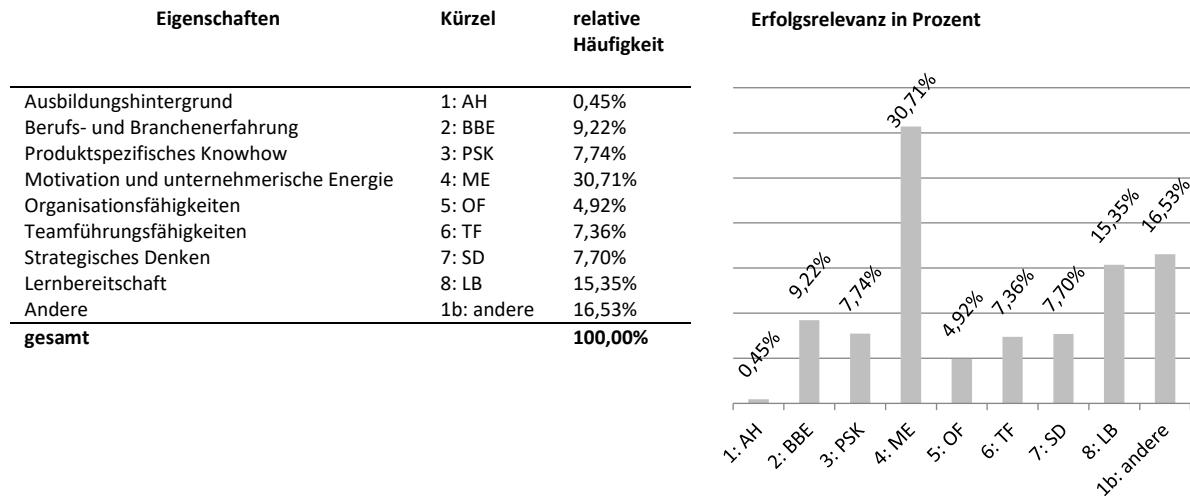
S6: Wie ist Ihre Erwartungshaltung als Investor? Welche durchschnittliche jährliche Rendite  
 streben Sie an? (in Prozent; N = 77)

Intervall- klassen (Prozent)	relative Häufigkeit	kumulierte Häufigkeit	Lage- parameter	Prozent
bis 10%	20,8%	20,8%	Mittelwert	23,5%
bis 20%	42,9%	63,6%	Median	20,0%
bis 40%	27,3%	90,9%	Spannweite	100,0%
bis 100%	9,1%	100,0%	Stand. Abw.	16,8%

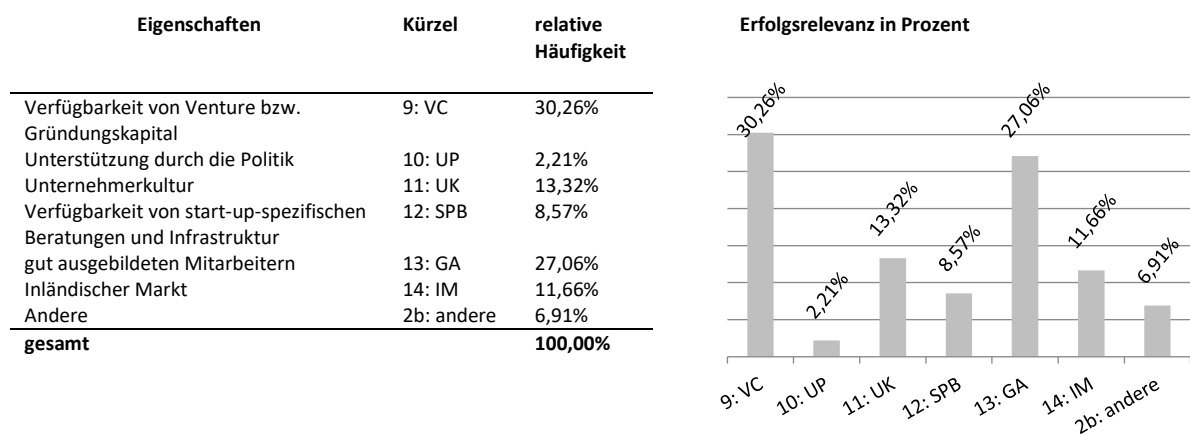


## DESKRIPTIVE STATISTIK DER STICHPROBE

*1a:* Aus Ihrer Erfahrung: Welche der folgenden Persönlichkeitseigenschaften trägt wesentlich zum Unternehmenserfolg bei? Nennen sie bitte die drei Wichtigsten und deren Erfolgsrelevanz in Prozent?



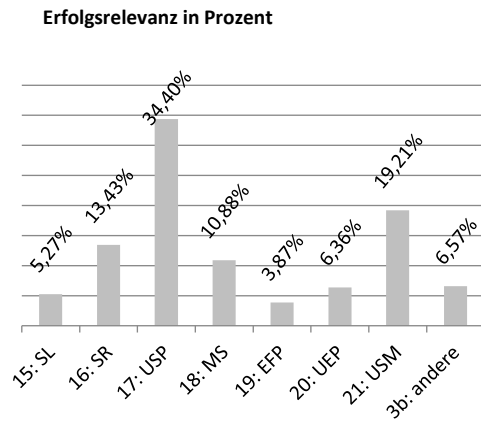
*2a:* Aus Ihrer Erfahrung: Welche der folgenden Kontextfaktoren tragen wesentlich zum Unternehmenserfolg bei? Nennen sie bitte die drei Wichtigsten und deren Erfolgsrelevanz in Prozent?



## DESKRIPTIVE STATISTIK DER STICHPROBE

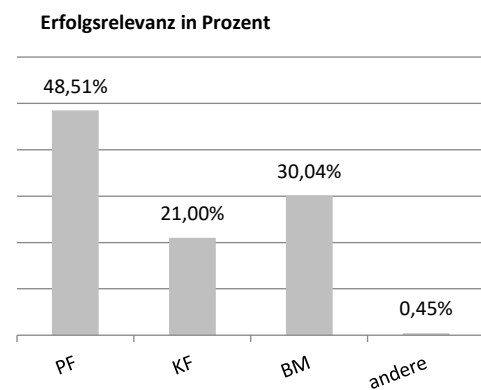
3a: Aus Ihrer Erfahrung: Welche der folgenden unternehmensbezogenen Faktoren tragen wesentlich zum Unternehmenserfolg bei? Nennen Sie bitte die drei Wichtigsten und deren Erfolgsrelevanz in Prozent?

Eigenschaften	Kürzel	relative Häufigkeit
Verfügbarkeit von strategischen Lieferanten bzw. Key Partners	15: SL	5,27%
Verfügbarkeit von Schlüsselressourcen	16: SR	13,43%
Überzeugendes Nutzenversprechen	17: USP	34,40%
Plausibles Konzept der Marktsegmentierung	18: MS	10,88%
Erfolgs- und Finanzplanung	19: EFP	3,87%
Umsetzungsplanung/	20: UEP	6,36%
Unternehmensentwicklungsplanung		
Plausibles Umsatzströme Modell	21: USM	19,21%
Andere	3b: andere	6,57%
<b>gesamt</b>		<b>100%</b>



4a: Wie hoch schätzen Sie den Erfolgsbeitrag der einzelnen Faktorengruppen in Prozent ein?

Faktorengruppen	Kürzel	relative Häufigkeit
Persönlichkeitseigenschaften	PF	48,51%
Kontextfaktoren	KF	21,00%
Unternehmensfaktoren	BM	30,04%
Andere	andere	0,45%
<b>gesamt</b>		<b>100,00%</b>



SUCCESS FACTORS OF DIGITAL START-UPS –  
A QUALITATIVE ANALYSIS OF THE ENTREPRENEURIAL PERSONALITY FROM  
THE PERSPECTIVE OF GERMAN VENTURE INVESTORS

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c. SUCCESS FACTORS OF DIGITAL START-UPS –  
A QUALITATIVE ANALYSIS OF THE ENTREPRENEURIAL  
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Schumacher, N. Success Factors of Digital Start-ups - A Qualitative Analysis of the Entrepreneurial Personality from the Perspective of German Venture Investors. Vorbehaltlich akzeptiert von Dabić, M. & Kraus, S. (Eds.) für das Handbuch De Gruyter Handbook of SME Entrepreneurship

**Abstract**

This exploratory study examines the personality characteristics that influence the success of digital start-ups from the perspective of German venture investors. The original research takes a *three-dimensional approach* and integrates the micro-perspective on the entrepreneurial personality, the meso-perspective on the business model, and the macro-perspective on the entrepreneurial context. Based on qualitative content analysis of expert interviews with German VC investors, this study considers personality and behavioral characteristics of entrepreneurs, such as *entrepreneurial motivation and energy* and *willingness to learn*, as the most relevant characteristics for success. Particularly in the start-up phase of a digital company, the ability to question one's approach and convictions regularly, not only when mistakes are recognized but also to consider information and assessments from others, characterizes successful entrepreneurship. In addition, German VC investors consider the overall group of personality characteristics (perspective on entrepreneurial personality) to be most important for entrepreneurial success. Furthermore, the experts' assessment of success characteristics provides a valuable perspective that has received little attention in the current literature. Finally, this study provides practical added value for researchers and practitioners regarding considering focal points in German VC investors' implicit or explicit valuation model.

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**Keywords**

Start-up Success, Entrepreneurship, Entrepreneurial Personality, Venture capital investors, Entrepreneurial Motivation and Energy, Willingness to Learn, Digital Start-up

**Introduction**

Digitization and related technological innovations have opened new opportunities for companies to create value and necessitate the development of new business models (Bouwman et al., 2019; Cosenz & Bivona, 2021; Dabić et al., 2021b; Hock-Doepgen et al., 2021). In today's digital economy, companies generate customer value through physical activities and create value at the virtual level, e.g., through platform business models and other forms of digital infrastructure (Aloulou, 2019, pp. 190–195). Consequently, the importance of the business model, i.e., the value creation model, has increased, making digital entrepreneurship (e-entrepreneurship) different from traditional entrepreneurship in several respects (Arlott et al., 2019, pp. 4–8; Wirtz, 2019, pp. 35–49).

Nevertheless, at least in the German-speaking world, entrepreneurship research remains bound mainly to classical approaches, i.e., those that emphasize personality factors (Blum & Leibbrand, 2001, pp. 15–16). Dualism, which integrates two perspectives on entrepreneurial success, as opposed to monism, extends this approach. To move beyond this dualism, Shepherd et al. (2019) propose a meta-framework and challenge entrepreneurship researchers to offer a different, three-dimensional approach that considers the entrepreneurial personality (micro-level research), the entrepreneurial context (macro-level research), and the characteristics of the business model (meso-level research). This study contributes to this line of inquiry by examining the relevance of success characteristics at all three levels for digital start-ups from the perspective of German Venture Investors. The systematic literature reviews by Köhn (2017) and Granz et al. (2020) suggest that venture investors can be considered as well-informed experts. Both studies conclude that Venture Capital (VC) investors seem to base their investment practices on multidimensional decision models on entrepreneurial success.

This chapter draws on the original empirical research. It addresses two research questions (RQs): First, to what extent do single entrepreneurial characteristics (micro-level research) in terms of personality, human capital, and actions influence the economic success of a digital

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start-up from the perspective of German venture investors? Second, what conclusions can be drawn from expert interviews with German venture capitalists regarding the relevance of success characteristics at the micro-, macro-, and meso-levels for the economic success of digital start-ups? To answer these two questions, this chapter first provides an overview of the current debate on different research approaches to entrepreneurial characteristics and then presents the results of the original empirical research.

This empirical investigation shows that from the perspective of German VC investors, micro-level success characteristics of e-entrepreneurship, such as *Motivation and Entrepreneurial Energy* and the *Willingness to Learn*, are the most relevant predictors of success. Especially in the start-up phase of a digital company, successful entrepreneurship is not characterized by “heroic adherence” (Schumpeter, 1942) to an idea, but by the ability to regularly question one’s approach and convictions, not only when the founder identifies mistakes, but also to take into account information and assessments of others (Anand et al., 2021). In this respect, the entrepreneur is not a *homo economicus* but rather a *homo robustus*.

Moreover, German VC investors consider the entire group of entrepreneurial characteristics most important for entrepreneurial success than macro- or meso-level success characteristics. Specifically, VC investors assume that digital start-ups with strong entrepreneurial personalities and based on solid business models will find business opportunities, VC, appropriate employees, and markets even if an entrepreneurial ecosystem does not support them.

### **Theoretical Perspectives**

Academic entrepreneurship research focusing on personality characteristics has a long tradition of empirical research (Eckardt, 2015, p. 12; Ferreira et al., 2019, pp. 183-185; Meyer, 2020, pp. 24–29; Obschonka & Stuetzer, 2017, p. 203). This research line was developed in business psychology at the instigation of American VC investors and was the first systematic attempt to explain start-up activities or differences between entrepreneurs and employees (Volkman et al., 2010, p. 9). The purpose was to identify specific personality characteristics of entrepreneurs in terms of their prospects of success and thus to gain additional criteria for investment decisions. The personality approach to understanding entrepreneurship assumes that personality characteristics distinguish entrepreneurs from non-entrepreneurs (Altinay et al., 2021). In

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contrast, economic policy has guided traditional academic entrepreneurship research in Europe. This research intended to identify personality characteristics to provide a blueprint for economic policy to promote entrepreneurship (Volkman et al., 2010, p. 10). Insofar, this traditional approach to entrepreneurship research is, at its core, research on psychological success factors, i.e., of individuals rather than, e.g., of companies or the entrepreneurial environment.

Following these traditional approaches, Fueglistaller et al. (2008, p. 1) define entrepreneurship as a process initiated and carried out by individuals identifying, evaluating, and generating benefits from business opportunities. The classic concept of the entrepreneur traces back to Schumpeter, who defined the entrepreneur as a natural person who runs a business alone or with others (Meyer, 2020, pp. 24–25) to regularly destroy the market equilibrium through the introduction of innovations understood as new combinations of already existing resources (Ferreira et al., 2019, p. 183). In contrast to the manager, a key characteristic of the entrepreneur is the willingness to take risks. Thus, there is a real risk of losing the invested equity. The three classic characteristics of the entrepreneur in this context are first, independent action; second, organizational leadership and planning authority; and third, willingness to take risks (Blum & Leibbrand, 2001, pp. 6–9).

In the case of small businesses, it is first and foremost the personality of the founding team or the entrepreneur that determines economic performance, which could explain the focus on personality characteristics when researching start-up success (Andersson, 2007, p. 129; Najmaei & Sadeghinejad, 2019, p. 103; Obschonka & Stuetzer, 2017, p. 203). Consequently, entrepreneurship research that focuses on the micro-level uses psychological concepts such as personality, a core concept in psychological research (Kraus et al., 2018; Obschonka & Stuetzer, 2017). However, according to Rauch and Frese (2008), a static personality approach falls short as the sole model to explain and promote entrepreneurial success. Instead, a theory of entrepreneurship should also consider the business environment (e.g., McMullen & Shepherd, 2006).

However, actor-centered research at the micro-level is by no means limited to the actor (Audretsch, 2012, pp. 761–762; Cunningham et al., 2019). Audretsch (2012) points out that there has been an increase in the number of empirical studies with a greater emphasis on context



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and that entrepreneurs do not see contextual factors as limiting, but rather as having configurable potential, i.e., certain factors may be beneficial in that they can be manipulated and exploited by the entrepreneur in one way or another. Thus, research on the entrepreneur's interaction with the environment is increasingly becoming the focus of entrepreneurship research (Unger et al., 2011). The literature, e.g., has recently become more diverse in terms of both methodology and perspective (Audretsch, 2012, p. 755; Ferreira et al., 2019, pp. 187–195; Zahra et al., 2014, pp. 487–495).

Most theoretical approaches and models assume that entrepreneurial success results from behavioral dispositions rather than personality characteristics, especially the continuous search for business opportunities. However, recent research has examined the success factors of entrepreneurial action only in one phase of the business life cycle – the start-up and growth phase – and not in other phases. Moreover, most studies have not examined different types of entrepreneurs, but only those considered innovative, so-called high-impact entrepreneurs (Acs, 2010, p. 165). A more recent model to explain entrepreneurial success as the primary purpose of entrepreneurship research is the *Giessen-Amsterdam Model of Entrepreneurial Success* (Rauch & Frese, 2008). Personality characteristics and human capital are the basis for entrepreneurial behavior and activities, while the firm's environment also influences entrepreneurial behavior and activities.

Given the many opportunities new digital technologies present, entrepreneurs must have the appropriate skills to identify and exploit entrepreneurial opportunities in the digital economy. For example, while entrepreneurs must have specific skills based on their professional education and previous experience (Levie et al., 2009), soft skills are essential for the entrepreneurial process and success, especially in an increasingly digital economy. In addition, entrepreneurs need to have some technological awareness to recognize the potential of new digital technologies for their business model. This awareness is also critical for developing new products and services and new ways to deliver them (Bogdanowicz, 2015; Ghezzi & Cavallo, 2020; Nambisan, 2017). Although Rauch and Frese (2008) do not explicitly mention awareness of technological change, one could argue that they emphasize the importance of *Entrepreneurial Orientation and Innovation*, among other aspects in their Giessen-Amsterdam Model, which, in turn, would include technology awareness in the digital economy.

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According to Laar et al. (2017), digital knowledge, digital skills, digital literacy, general knowledge, motivation and entrepreneurial energy, self-efficacy, and willingness to learn are essential for entrepreneurs to succeed in the digital economy. Furthermore, given the rapid changes in the economy associated with digitalization, these skills determine potential competitiveness and the ability to drive innovation (Dabić et al., 2021a). This finding is also in line with the personality concept of the Giessen-Amsterdam Model (Rauch & Frese, 2008). However, as the Internet makes information widely available to everyone and virtually ubiquitous, disseminating and using the available knowledge are critical success factors for entrepreneurial performance (Kumar & van Welsum, 2013).

Shepherd et al. (2019) conclude that the focus in the literature and related findings confirm that micro-level factors (characteristics of the entrepreneur or founding team) seem to have the most significant impact on start-up success. Schumacher (2022) notes that this happens despite the growing number of positive findings demonstrating the importance of single contextual factors. However, this consensus may also have methodological reasons. Both the ecosystem and traditional entrepreneurship approaches focus on a specific research focus. As a result, they isolate either the contextual factors for successful entrepreneurship or the micro-level factors. However, Shepherd et al. (2019) conceive the entrepreneurial process as a multiple-stage one characterized by the interaction of individual, organizational, and contextual factors.

### **Research design**

This chapter presents new insights from a larger research project that adopts a multi-perspective approach to investigate the three dimensions of entrepreneurship research from the perspective of German VC investment managers. Initial results on the macro perspective have been published by Schumacher (2022). First, the researcher identified experts using the German Digital Economy Association (BVDW) membership list, including start-up investors focused on digital companies. Then, based on this list of 725 potential experts and an initial mailing by email or message via the professional online business network LinkedIn, 77 experts were recruited and interviewed between August 2018 and February 2019, mainly in person, by telephone, or in video conferences.

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This research investigates the importance of and interaction between groups of success characteristics (categories) and single success characteristics (subcategories) across the three aforementioned research dimensions for entrepreneurship. To this end, one reference model was operationalized for each research perspective and used as the basis for data collection through guided expert interviews. First, the Giessen-Amsterdam model as an actor-centered model (Rauch & Frese, 2000; Rauch & Frese, 2008). Second, the Isenberg model (2011) is a reference model for the entrepreneurial context. Third, the Osterwalder-Pigneur Business Model Approach is a reference model for business model components (Osterwalder & Pigneur, 2005). However, the focus of this chapter is specifically to present exploratory research at the micro-level.

This study uses the Giessen-Amsterdam Model of Entrepreneurial Success developed by Rauch and Frese (2008), as it is the most comprehensive psychological model to date for explaining entrepreneurial success at the micro-level (Rövekamp, 2011). However, this model assumes that the entrepreneur's actions determine success. Therefore, neither personality characteristics, human capital, nor the environment are directly related to entrepreneurial success, but they influence entrepreneurial behavior and activities (entrepreneur's action characteristics) and thus indirectly impact entrepreneurial success.

In addition, their model assumes that an entrepreneur's personality influences the structures and actions within the company, the type of employees hired, the priorities, the implementation of visions and strategies, and the corporate culture in general. By linking an entrepreneur's personality characteristics and human capital to action characteristics, the model provides a way to examine the influence of these two categories on success. According to Rövekamp (2011), the model contains action-relevant characteristics, including cognitive processes and learning processes such as learning from mistakes or learning by doing.

Table 1 (Tab. 1) lists the characteristics that may influence the economic success of a digital start-up derived from the Giessen-Amsterdam Model. The present research does not consider attributes that relate to the company's environment, as the research on the macro perspective covers this aspect in the original study (Schumacher, 2022). The selection of the listed characteristics takes the best possible consideration of possible dependencies on personality, human capital, and action characteristics.

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**Tab. 1. Characteristics of the Entrepreneur**

<i>Dimension</i>	<i>Characteristics</i>
<b>Characteristics of the Entrepreneur (Micro-level)</b>	Education
	Professional and Industry Experience
	Motivation and Entrepreneurial Energy
	Product-Specific Know-How
	Organizational Skills
	Team Leadership Skills
	Strategic Thinking
	Willingness to Learn
	Other Characteristics (mentioned by the expert)

Before the interview, the researcher asked a related filter question to ensure that the interviewee is an active professional investment manager making decisions about funding digital start-ups. Then, to answer the first RQ, the researcher first asked the experts about the relevance of single characteristics of the entrepreneurs' personality to success. To this end, the researcher provided the interviewees with a list of characteristics (cf. Tab. 1) and additional explanations on a handout. In a second step, the researcher asked the experts to select a maximum of three characteristics they thought had the most significant influence on a digital start-up's success. In the final step of the first part, the experts explained their decision in greater detail.

RQ2 asks about the conclusions regarding the relevance of the entire groups of success characteristics at the micro-, macro-, and meso-levels for the economic success of digital start-ups. Therefore, the second part of the interview was devoted to data collection to answer RQ2. The basis here were the entire groups of characteristics per research perspective (actor, context, and business model) already known from the first part of the interview. Here, the researcher asked the experts to evaluate the success relevance of the entire group of characteristics and give reasons for the decision.

The analysis of the total of 731 collected statements follows the structuring qualitative content analysis according to Mayring (2010). The approach taken was deductive-inductive: The categories of the content-analytical category system were derived theoretically (deductive), and the subcategories were developed from the transcript (inductive). The analysis process followed

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three steps: First, the transcripts of the interviews were divided into coding units (segments). The segments were determined based on content. Second, trial coding was conducted. Third, primary coding was conducted.

### **Interviewees**

The present study analyzes the responses of experts interviewed by Schumacher (2022). An initial filter question ensured that all 77 venture investors were responsible for investment decisions regarding digital start-ups. Moreover, 35 have worked in this capacity for more than five years (45.5%), and 24.7% even have 10 or more years of professional experience. In addition, 42 (54.5%) have been investment decision-makers for up to 5 years. In terms of professional experience, the mean value is 7 years, with a median of 5.

5.2% of the interviewees are analysts, 11.7% Chief Executive Officers (CEO) of a VC company, 11.7% department heads in a VC company, about 17% managing partners, 22.1% managing directors, and 27.3% angel investors. In addition, 5.2% indicated that they have other professional roles and responsibilities. In terms of assets under management on a 3-year average, 58.2% of the interviewees were responsible for assets of up to EUR 10 million and 9% even for more than EUR 100 million. The volume of the assets under management, i.e., the sum of cash, deposits, and shareholdings' market value, range from EUR 40,000 to EUR 1bn.

These numbers indicate that the interviewees had considerable experience and success when investing in and financing digital start-ups. It is safe to assume that these experts also have sufficient empirical knowledge to assess the financial risks in this context. 55% of the interviewees estimate that their investment decision success rate is close to 60%. 45% claim that it is more than 60%. 11.3% estimate that their investment decision success rate is less than 20%. As suggested by location parameters, which suggest nearly a normal distribution of the self-assessments of investment decision success rates (mean = 56.1%, median = 60%), the experts interviewed do not seem to be characterized by excessive confidence regarding their investment capabilities.

Given their performance and experience of successfully investing larger amounts of fund capital and managing the associated risk, one can conclude that the interviewees are experts in their field. Although these experts likely consider the personality of the entrepreneurs and founding

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teams, the start-up business model, and the entrepreneurial ecosystem when assessing investment risk, this study examines only the personality characteristics of the founder(s) in the following sections.

### **Effects of Characteristics of the Entrepreneur on Start-up Performance**

This study derives eight characteristics (see Tab. 1) from the Giessen-Amsterdam Model. By question 2a, the interviewed experts selected a maximum of three characteristics that they believe have the most significant influence on the success of a digital start-up and identified *Motivation and Entrepreneurial Energy* and *Willingness to Learn* as the most critical.

Motivation and Entrepreneurial Energy should be interpreted primarily as a personality characteristic. Mitchell and Daniels (2003) and Pinder (1998) see motivation and entrepreneurial energy as the basis for developing an entrepreneurial activity on one's initiative, organizing situations and processes oneself, and maintaining the necessary motivation. However, the present study focuses only on the intrinsic part of this definition of entrepreneurial energy. Like Willingness to Learn, also a personality characteristic, Motivation and Entrepreneurial Energy directly influence Self-Initiative as an action characteristic (Rauch & Frese, 2008).

The experts considered other characteristics such as Leadership, Strategic Thinking, Product-Specific Know-How, and Professional and Industry Experience as of average relevance to success, while they did not consider the Educational Background at all. Finally, in the group of Other Characteristics, the experts mentioned characteristics that could not be assigned to the listed ones.

Some experts (Ex) (cf., e.g., Ex1, Ex3, Ex4, Ex12, and Ex14 in Tab. 2) emphasize that Motivation and Entrepreneurial Energy are critical prerequisites for starting a business, successfully launching the first products, and managing the operation. One of these experts (Ex14) describes an entrepreneur as 'born to fail.' Failure, large and small, is a constant possibility and part of the everyday experience of entrepreneurs, especially in the start-up phase (see Ex74 in Tab. 2). In this respect, the archetype of the entrepreneur would not be the optimistic, opportunity-seeking Schumpeterian destroyer (Ferreira et al., 2019, p. 183), but rather the resilient type who finds himself or herself in a constantly precarious situation, at least

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in the start-up phase. Instead of strategically superior thinking, he or she demonstrates product know-how, leadership, or team skills and is characterized by a specific mental resilience when experiencing failure.

**Tab. 2. Selected Statements on Motivation and Entrepreneurial Energy**

<i>ID</i>	<i>Statement</i>
<b>Ex1</b>	“Founding is an enormous burden on the founder - mentally and physically.”
<b>Ex3</b>	“... because you also have to fight your way through the valleys.”
<b>Ex4</b>	“Many low blows mark start-up life” ... “falling, getting up, carrying on, and not getting discouraged.”
<b>Ex5</b>	“...compensate many weaknesses and deficits with motivation and energy.”
<b>Ex6</b>	“Ability to suffer” ... “perseverance” ... “much energy is required on this path of trial and error.”
<b>Ex12</b>	“There is a great desire to deal with problems” ... “to make new decisions again and again.”
<b>Ex14</b>	“Start-ups are born to fail. So, you need the entrepreneurial spirit to get through it.”
<b>Ex17</b>	“Motivation and entrepreneurial energy go hand in hand with a willingness to learn.”
<b>Ex30</b>	“... not to be discouraged.”
<b>Ex31</b>	“Since money can buy almost everything else, motivation is the point that covers everything else I can't buy.”
<b>Ex34</b>	“Because of my experience, I don't care about education and professional skills. It's about the guys; they have to have energy and be willing to learn.”
<b>Ex53</b>	“... is needed for one financing round after another.”
<b>Ex55</b>	“Motivation makes a big contribution. If someone has entrepreneurial energy, the founders are acquiring exactly the skills they lack.”
<b>Ex62"</b>	“The constant getting up, falling, getting up and not getting frustrated.”
<b>Ex71</b>	“Motivation and energy are the most important, as a soldier on, stay the course.”
<b>Ex73</b>	“Entrepreneurship is, at its core, about dealing with challenges. This can balance many other insufficiencies.”
<b>Ex74</b>	“The probability of failure is much greater than the probability of success. And then to move on, that's a start-up entrepreneur.”

This result would be a starting point for understanding entrepreneurship that emphasizes resilience, persistence, and learning. Such an understanding assumes that the entrepreneur is not the rational utility maximizer who weighs the considerable risks of starting up in his or her

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favor in the constant search for opportunities but can turn failure into profit in the long run. In this respect, the entrepreneur is not a *homo economicus* but a *homo robustus*. The findings of this study are thus more in line with recent research on resilience, which examines the impact of the ability to cope with crises and to overcome and exploit them by drawing on personal and social resources (e.g., Fischer et al., 2016; Hallak et al., 2018).

However, additional characteristics are required for this high frustration tolerance to contribute to organizational success. For example, Ex17 (Tab. 2 and Tab. 3) and Ex34 (Tab. 2) explicitly point out the connection between trying, failing, and learning as a cycle of entrepreneurship, thus establishing the link to the second most crucial micro-level success characteristic: Willingness to Learn. For example, experts Ex5 and Ex12 point out that a willingness to learn is a prerequisite for success in the VC market (see Tab. 3). Ex30 goes one step further and states that even a mediocre start-up idea or a mediocre business model does not necessarily lead to failure if there is an apparent willingness to learn.

**Tab. 3. Selected Statements on Willingness to Learn**

<i>ID</i>	<i>Statement</i>
<b>Ex1</b>	<p>“Willingness to learn is just as important because you have to learn fast, [...]. Most of the time, the founders have no leadership experience and little organizational skills when they startup.”</p> <p>“Willingness to learn because you have to react quickly. To the feedback of potential customers, e.g., especially in the launch phase.”</p>
<b>Ex5</b>	<p>“With existing willingness to learn, the investor sees that the founder means business.”</p>
<b>Ex7</b>	<p>“The ability to take in currents and clues, i.e., the willingness to learn, and that is very, very important.”</p>
<b>Ex10</b>	<p>“Willingness to learn is essential, as digitization, in particular, requires a constant rethinking of the model.”</p> <p>“You have to be willing to try many new things.”</p>
<b>Ex11</b>	<p>“Willingness to learn is crucial... especially given the dynamics with which markets develop.”</p>
<b>Ex12</b>	<p>“The existing willingness to learn is an important decision criterion for the venture capitalist. Conversely, resistance to consulting is a reason not to invest.”</p> <p>“If a founding team can draw the right conclusions from the suggestions, that is an essential component of success.”</p> <p>“One must always be able to adjust and adapt to current market conditions.”</p> <p>“The founder must first become more familiar with the mechanisms of the industry.”</p>



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- Ex17** “Approach: Basically, everything can be learned. It’s just a matter of how much energy the founder wants to put into it.”
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- Ex18** “People are no longer hired based on work experience, but on their willingness to learn and many other soft skills. So, it’s always more important if people can learn.”
- 
- Ex30** “You have to learn a lot in the beginning to understand your own business’s basic idea and framework. This understanding is fundamental so that the business idea can become profitable.”  
“Most start-ups fail because they develop a solution to a problem that doesn’t exist.”
- 
- Ex32** “Willingness to learn is important because this is a journey that requires constant adaptation.”  
“Learning happens mostly in the market. ... Getting the right nuggets, that’s the high art Taking those nuggets and using them for development.”
- 
- Ex33** “Willingness to learn is important because the start-up phase is very volatile. So even if the training is excellent, the founder must still adapt if the situation changes.”
- 
- Ex46** “Willingness to learn is also super important. Consider, e.g., Rocket Internet. They are extremely willing to learn. For example, if they notice that a process is not running, they change over immediately.”
- 
- Ex52** “Willingness to learn includes flexibility.”
- 
- Ex56** “From my experience, there are good founders, but it fails because people don’t want to be advised in many cases.”  
“The sage use and implementation of advice, taking advantage of the learning curves of others, that is also an art.”
- 
- Ex63** “Team leadership skills and strategic thinking etc., can all be balanced by a willingness to learn.”
- 
- Ex65** “A founder cannot be familiar with all topics, so the willingness to learn is essential. ”
- 
- Ex67** “One always questions the project, learns from it, and grows from it.”
- 
- Ex70** “Willingness to learn. Feedback from others is critical, and to be exempt from this.”
- 
- Ex71** “Resistance to counseling is the worst, therefore willing to learn in any case.”
- 
- Ex72** “Willingness to learn and strategic thinking are almost equally important. People always influence and talk down to the founder, especially in the beginning[...], but you should never lose sight of the strategic, overarching goal. What is the vision?”  
“Nevertheless, a start-up has to learn quickly, react and adapt to changing conditions.”
- 
- Ex74** “Willingness to learn is crucial. If someone always knows everything better, success is doubtful.”
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Change may be necessary because entrepreneurs have made incorrect assumptions and because some assumptions may no longer be valid. However, as Ex52 points out, entrepreneurs who are willing to learn and could quickly acquire new skills can quickly correct mistakes and adapt to

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constantly changing conditions, precisely because the dynamics of the markets may also require an adjustment of the original business model or product concept (see Ex11, Ex46, and Ex72 in Tab. 3).

In this context, Ex12 and Ex56 emphasize that willingness to learn also means being able and willing to learn from others. This result also contradicts some basic assumptions of the traditional entrepreneurship literature, especially the heroic Schumpeterian entrepreneur (Schumpeter, 1942), and is thus another argument for an understanding of entrepreneurship that emphasizes resilience, perseverance, and learning: Successful entrepreneurship is not the heroic adherence to an idea against odds by the genius inventor-entrepreneur (i.e., an optimistic, heroic notion of entrepreneurship along the lines of Schumpeter’s disruptive pioneer entrepreneurs), but rather the ability to question one’s actions and beliefs continually, not only in the face of recognized mistakes, but also in light of information, assessments, and evaluations by others. This understanding refers to the entrepreneur failing but learning from mistakes.

However, there is also a risk, as Ex72 points out: “There are always people who influence the founder, especially in the beginning, and talk to him, ... However, you should never lose sight of the strategic, overall goal. What is the vision?” Ex72’s statement implies that there must always be a strategic perspective that limits the option space. Ex19 makes a similar statement about Strategic Thinking as a further success factor, while Ex20 even posits a causal relationship between Willingness to Learn and Strategic Thinking (cf. Tab. 4). Ex20 thus sees Strategic Thinking itself as a function of the ability or Willingness to Learn.

**Tab. 4. Selected Statements on Other Items Referring to the Top Success Items**

<i>ID</i>	<i>Theoretical Code</i>	<i>Statement</i>
<b>Ex19</b>	ST	“Without a holistic, long-term strategic vision, getting lost in small details is usually hazardous.”
<b>Ex20</b>	ST	“Strategic thinking requires the willingness to learn.”
<b>Ex57</b>	LS	“All individual team members must complement each other – that’s beyond question.”
<b>Ex65</b>	LS	“Team leadership skills are essential to managing and organizing a heterogeneous team.”

*Abbreviations:* ST = Strategic thinking; LS = Leadership skills.

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In connection with the Willingness to Learn or to seek advice from others, interviewees such as Ex57 and Ex65 describe another critical skill: the ability to assemble a heterogeneous team that complements the profile of the founder or the founding team. Leveraging this heterogeneity, i.e., accommodating competing perspectives and approaches, ideally aligns with the founder's strategic perspective. The founder's objective is to make the best use of the different skills and resources for the company's direction and development.

In the final part of the interview, the researcher asked the experts about the relevance to the success of the entire group of characteristics per research perspective (actor, context, and business model). The highest relevance to success is attributed to personality characteristics, followed by business model components. However, according to the experts interviewed, entrepreneurial context contributes least to entrepreneurial success.

**Key Findings: The VC Perspective on Personality Characteristics**

The qualitative content analysis (Mayring, 2010) results show two prominent personality characteristics: Motivation and Entrepreneurial Energy and Willingness to Learn, and two supporting characteristics: Strategic Thinking and Leadership Skills. The first, Motivation and Entrepreneurial Energy, is the core characteristic of the start-up. This resource is why individuals acquire the knowledge and management skills they lack but need for their business. It enables entrepreneurs to accept mistakes made in the start-up process. In addition, this core characteristic allows the necessary flexibility in the orientation of the start-up even to a dynamic environment. The second, Willingness to Learn, is the basis for transforming failures and mistakes into new solutions, and thus one of the essential means to draw on Motivation and Entrepreneurial Energy. In addition, the resource Willingness to Learn creates the basis for the company to adapt to changing markets.

Regarding the supporting characteristics, Strategic Thinking enables entrepreneurs to have a strategic orientation and thus acts as a counterweight to excessive energy or aimless learning as an end in itself. It also enables entrepreneurs to choose strategically relevant approaches from many ideas and solutions, especially in a founding team. The second supporting characteristic, Leadership Skills, serves as a prerequisite for creating a culture of error, learning, and diversity in solution generation (learning organization) (Anand et al., 2021).

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Investors thus regard motivation and entrepreneurial energy as a personality characteristic of the entrepreneur relevant to success. This result aligns with other recent empirical studies that show that intrinsic motivation is more relevant than extrinsic motivation. For example, Murnieks et al. (2016) and Granz et al. (2020) find that angel investors view founder motivation and energy as relevant to success. Cardon and Kirk (2015) also find that motivation and energy affect self-efficacy, positively affecting firm growth. However, motivation and energy can change over time. So that after a particular time, extrinsic motivation in the form of business success can complement intrinsic motivation (Westhead et al., 2005). For investors, the question becomes whether entrepreneurs remain focused and motivated, especially during difficult times.

Since Motivation and Entrepreneurial Energy and Willingness to Learn are both personality characteristics, they cannot be learned or acquired. Unger et al.'s (2011) meta-analysis of the effects of human capital on success shows that knowledge and skills, such as Leadership Skills and Strategic Thinking, are the result of human capital investments such as experience and training. Investing in acquiring knowledge and skills, in turn, requires sufficient entrepreneurial motivation and energy and willingness to learn. Thus, the meta-analysis of Unger et al. (2011) also confirms that these two identified key characteristics can be considered essential original resources of the start-up company. Recent studies also show that knowledge, in particular, is the moderating variable between motivation and energy and success (Wood et al., 2014), as expertise and skills enable individuals to find solutions under challenging conditions, so that motivation and energy can be transformed into problem-solving activities (Dabić et al., 2021a). This study suggests that resource-based theories of entrepreneurship for start-up companies are better suited than market-based theories to explain the success of start-up companies, as resource-based theories assume that endogenous resources (firm-specific resources) explain firm growth (Andersson, 2007, p. 129; Brockhoff, 2017, p. 74). Based on these findings, one could conclude that the entrepreneur is the most critical resource, to the extent that he or she embodies the company and the resource Willingness to Learn is the *modus operandi* of this resource.

However, it is important to note that this by no means implies a classic heroic image of entrepreneurship in the sense of the Schumpeterian entrepreneur. Instead, an understanding of entrepreneurship has emerged that emphasizes resilience, perseverance, and learning. Seen in

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this light, successful entrepreneurship is characterized by certain robustness in the sense of resilience and the ability to keep motivating oneself and learning from mistakes despite the very real possibility of failure in the future (Faradjollahi, 2019; Fischer et al., 2016; Hallak et al., 2018). In addition, there is a high degree of self-reflection, especially when questioning one's ideas, strategy, or business model; the ability to provide feedback and evaluate various external and internal suggestions and ideas concerning the most important and strategically relevant points; or the ability to create and foster a corporate culture that values learning and ideational and conceptual heterogeneity in the founder or top management teams (Rauch & Frese, 2008). Thus, the paradigm gained from the expert interviews differs from the lonely, heroic entrepreneur.

This explorative, qualitative study further suggests that the overall group of personality characteristics has the most significant influence on the success of a digital start-up in the view of German VC investors compared to the groups of contextual or business model characteristics. The focus on e-entrepreneurship, which can break down the spatial dependence of companies in general and digital companies in particular (Arlott et al., 2019, pp. 6-7), could explain the comparatively low relevance of the entrepreneurial context.

### **Limitation and Outlook**

This exploratory qualitative study provides an initiative suggestion for entrepreneurship research of entrepreneurial success at the micro-level that could have implications for future entrepreneurship and firm performance resources. It is also a contribution to the literature on the relationship between intellectual agility, entrepreneurial leadership, and innovation capability (Dabić et al., 2021a), on knowledge sharing and thus enhanced organizational learning in SMEs that can ultimately improve performance (Anand et al., 2021), and on the positive effects of motivation and entrepreneurial energy on self-efficacy and thus on firm growth (Cardon & Kirk, 2015).

The main contribution of this study is to take a different perspective on digital start-ups and digital start-up entrepreneurs by choosing that of German VC investors. Experts' assessments of success characteristics instead of interviewing digital start-up entrepreneurs and their attitudes toward success resources provide a valuable perspective that has received little

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attention in the current literature. Moreover, since the experts interviewed are observers and practitioners who take financial risks and analyze the founders, their business models, and the entrepreneurial context, this perspective provides valuable new insights into each aspect.

Answering the two key research questions provides new findings regarding the model used by German VC investors to evaluate the future economic success of digital start-ups. In the context of the qualitative content analyses (Mayring, 2010) conducted, it can be concluded that motivation and entrepreneurial energy and willingness to learn are the essential resources determining success. These two personality characteristics can be seen as the basis of relevant action characteristics and expanding human capital. This finding is in line with those presented in Unger et al. (2011) meta-analysis. Furthermore, the entrepreneur can use his or her entrepreneurial energy to influence all other resources, including contextual and business model characteristics. Therefore, it is not surprising that the experts also rated the overall group of personality characteristics as most relevant for entrepreneurial success.

The research findings of the present study allow researchers and practitioners to consider the focal points in the implicit or explicit valuation model of German VC investors. Thus, start-up entrepreneurs can find empirical added value regarding developing a diversity of the top management or founding team. Furthermore, transferring the associated prerequisites of Leadership Skills and Strategic Thinking into a practical approach can be advantageous when seeking funding. However, it is important to keep in mind that a content analysis of qualitative data can only provide approximate results and that a follow-up study using quantitative data and larger sample size will need to be conducted to confirm the findings discussed here.

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**Abstract**

Three-dimensional research approaches examining start-up success have become increasingly important in entrepreneurial research. These approaches integrate the micro-level perspective on the entrepreneurial personality, the meso-level perspective on the business model, and the macro-level perspective on contextual factors. This study follows this three-dimensional approach and, building on current findings, examines the factors influencing digital start-up success from a venture capital investor's perspective. The focus here is specifically on the macro level. Based on success factor weightings and a qualitative analysis of expert interviews with venture capital (VC) investors, this study shows that only two of six contextual factors are deemed to be success-relevant: human capital and finances. Moreover, VC investors perceive the overall group of context factors (entrepreneurial ecosystem factors) to be the least relevant to entrepreneurial success compared to the other two groups of factors.

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**Keywords:** Digital Start-up, Macro-Level Perspective, Digital Entrepreneurship, Venture Capital Investors, Entrepreneurship Ecosystem, Start-up Success

### **Introduction**

Due to their increasing economic importance, entrepreneurship and start-ups have received considerable attention by policy-makers, the media, and the public in the last decade (Hahn, 2014). It is generally assumed that entrepreneurship and successful start-ups are prerequisites for and drivers of smart, sustainable, and innovative economic growth (OECD, 2010). As a result, considerable attention has been paid to policies and initiatives creating favorable conditions for start-ups, for example artificial entrepreneurship ecosystems such as incubators or innovation clusters.

In light of these developments, it is not surprising that research on entrepreneurial eco- systems has garnered increasing attention in the last decade (Zahra et al., 2014; Mason and Brown, 2014; Theodoraki and Messeghem, 2017). Most of the literature on contextual factors (Alvedalen and Boschma, 2017; Malecki, 2018; Cavallo et al., 2019) and related explanations why start-ups succeed or fail is, however, still largely informed by traditional approaches to entrepreneurship focusing on micro-level factors (that is, personality factors).

Following Zahra et al. (2014), one can identify at least two paradigmatically different fields in entrepreneurship research, with each offering different perspectives on the economic agent and the socio-economic context. The first is the general entrepreneurship literature focusing on business-specific characteristics at the meso level (firm level) and/or on entrepreneurial behavior and personality traits (micro level). The second one, contextual research, examines the entrepreneurial framework, including spatial interaction (network effects) of entrepreneurs, companies, and institutions in regional ecosystems, the effects of macroeconomic factors, or other macro-level factors.

A micro–macro dualism can also be identified in contextual entrepreneurship research. For example, research on the emergence of entrepreneurial ecosystems distinguishes between a bottom-up (growth without a visible hand) and a top-down (governed by a visible hand) approach (Scaringella and Radziwon, 2018). Other contextual research addresses the question of whether innovative entrepreneurship requires artificial ecosystems at all (Ferrary and

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Granovetter, 2009). Shepherd et al. (2019) have proposed a “meta-framework” and call on entrepreneurship research to move beyond these kinds of dualisms to offer a different, tri-dimensional approach considering contextual factors, entrepreneurial personality factors, and entrepreneurial behavior.

The present study follows this proposition by examining the relevance of success factors at all three levels for digital start-ups from the perspective of venture capital (VC) investors. Also drawing on original empirical research, this chapter addresses two research questions (RQs). First, what is the effect of contextual factors on the entrepreneurial performance of digital start-ups? Second, to what extent do contextual factors (macro-level factors) affect entrepreneurial success compared to meso-level factors (digital start-up business model) and micro-level factors (entrepreneurial personality traits)?

To answer these two RQs, this chapter first reviews the current debate on different contextual research approaches. In addition to traditional monism, which explores one perspective of entrepreneurial success, and dualism, which integrates two perspectives, an extended perspective receives little attention (Shepherd et al., 2019). Following an integrated approach, this study offers new insights from both theoretical and empirical perspectives. The results of this empirical investigation show that from the perspective of VC investors, only two of the six context factor groups, namely human capital and finance, are considered relevant for start-up success. Moreover, the overall influence of contextual factors on the success of a digital start-up is assessed here as comparatively low. This chapter concludes that artificial entrepreneurial ecosystems such as regional clusters might not be as relevant as other factors in supporting entrepreneurship. This is all the more true in the digital age, which supports decentralized, cross-border activities at comparatively lower cost.

### **Theoretical Perspectives**

Research adopting a contextual perspective examines the interaction between start-up location, the contextual factors, and entrepreneurship. Despite rapid developments in information and communication technology (ICT), start-ups are still located in specific areas, creating regional clusters. Entrepreneurship, even of the digital kind, remains a localizable and localized phenomenon (Brown and Mason, 2017; Kollmann et al., 2018). Non-local interactions,

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however, must be considered as well by those seeking to explain entrepreneurship and start-up success (Spigel, 2017).

In contextual research, there are two approaches explaining the emergence of entrepreneurial ecosystems (Scaringella and Radziwon, 2018). The bottom-up approach explains ecosystem emergence and growth without a visible hand. The focus is on evolutionary dynamics: different institutions and individuals interact with each other, driven by their self-interest. Multi-actor networks emerge (Isenberg, 2014; Colombo et al., 2017; Auerswald and Dani, 2017; Brown and Mason, 2017; Belitski and Godly, 2020). Ideally, such a spontaneous ordering process creates cumulative self-perpetuating effects that influence not only the success rate of start-ups, but also the future level of entrepreneurship (Brown and Mason, 2017). In contrast, the top-down approach assumes that entrepreneurial ecosystems do not emerge spontaneously, but need to be governed by a visible hand such as policy-makers or governmental organizations providing resources and a certain form of governance (Stam, 2015; Spigel, 2016; Colombo et al., 2017). However, both approaches regard entrepreneurship and entrepreneurial resource providers as the key success factors of entrepreneurial ecosystems (Acs et al., 2014; Brown and Mason, 2017; Acs et al., 2017b).

An ecosystem—from the original perspective of the term—is a complex, dynamic system of living organisms and emerging, self-organized development (Oh et al., 2016; Scaringella and Radziwon, 2018; Cavallo et al., 2019). An entrepreneurship ecosystem can be understood in the same manner, although this analogy is widely criticized as flawed (Oh et al., 2016). The start-up (founder) ecosystem is comparable to a natural system, although the dynamics within this ecosystem are determined by social interaction (Stam and Spigel, 2016; Cavallo et al., 2019). In such a system, the entrepreneurial individual functions as a catalyst of resources and their recombination, which they can develop better in interaction with other individual actors in the start-up and innovation process in geographical proximity to usable resources, than in isolation (Alvedalen and Boschma, 2017; Elia et al., 2020). These distance-sensitive contact networks lead to a self-reinforcing interaction and spatial concentration of start-ups (Cavallo et al., 2019).

Silicon Valley is regarded as a prime example or archetype of such an entrepreneurship ecosystem. Although Silicon Valley has evolved over decades in several morphogenetic steps

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in a self-emerging and self-enforcing process (Ferrary and Granovetter, 2009; Elia et al., 2020), economic and political expectations for the establishment of artificial entrepreneurship ecosystems have nevertheless been triggered (e.g., Engel, 2015). In recent years, however, one can observe the failure of several projects (innovation clusters) that aimed to recreate Silicon Valley's success (Ferrary and Granovetter, 2009). This raises the question of whether innovative entrepreneurship needs artificial ecosystems, or whether such an approach is rather wishful thinking on the part of regional economic policy-makers and state-centric economic planning, especially in the context of increasing delocalization due to digital transformation (Riasanow et al., 2021).

Since entrepreneurial ecosystem research can be described as a relatively recent development, no consistent interaction perspective has yet been developed (Cavallo et al., 2019). Thus, a literature review on entrepreneurial ecosystems initially faces the problem of no unambiguous definition of contextual factors (Oh et al., 2016; Scaringella and Radziwon, 2018; Cavallo et al., 2019). The contextual factor perspective on entrepreneurship has been derived from the macroeconomic location theory (Boutillier et al., 2016). Porter then further developed the location theory at the firm level. He stated that, contrary to the thesis of a devaluation of the global economy's location through digitization, small-scale, location-based networking continues to be an important success factor, especially for small and medium-sized enterprises (Porter, 2000). Microeconomic models and theories explain the importance of spatial concentration in terms of lower information costs and other transaction costs. Thus, following these approaches, spatial concentration leads to the possibility of increased cross-company division of labor and thus corresponding options for specialization as a basis for firm growth (Porter, 2000; Delgado et al., 2014). Research from the spatial context perspective therefore refers to the self-reinforcing network effects and performance levers from clustering. Thus, rather than looking at individual entrepreneurs, this perspective looks at the effect of the sum of different actors and the effects resulting from spatial concentration (Delgado et al., 2014).

Some studies that have examined single or several of the entrepreneurial ecosystem factors defined by Isenberg (Table 9.1) find some evidence for the relevance of single-factor groups or several subfactors to success.

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Regarding the factor group “Human Capital,” Unger et al. (2011), Jain and Ali (2013), Richter et al. (2016) find evidence for the success relevance of the availability of flexible, multi-skilled members of the founder team. These entrepreneurial-minded and highly qualified employees are easier to find in regional entrepreneurial ecosystems. Schweer and Sahl (2017) show that employees with advanced technological skills in particular contribute to start-up success.

Regarding the factor group “Markets,” Richter et al. (2016) find that markets with a larger pool of early adopters and customers interested in innovation give start-ups more opportunities for proof of concept. Schweer and Sahl (2017), Delgado et al. (2014), Sullivan and Ford (2014), and Elia et al. (2020) show that local entrepreneurial networks tend to facilitate the exchange of knowledge (knowledge spillover) and to eliminate start-up resource deficits.

**Table 9.1 Isenberg’s ecosystem factor dimensions**

<i>Factor groups</i>	<i>Components</i>
Policy	1. Government, institutional and legislative support (tax laws, facilitation of business start-ups, research infrastructure) 2. Recognition and public support of entrepreneurship
Finance	3. Diversity of funding opportunities through banks and private equity (PE) or venture capital
Culture	4. Entrepreneurship culture: high reputation of entrepreneurship and the existence of exemplary entrepreneurs 5. Culture of risk-taking, innovation and general optimism
Business Services	6. Non-governmental organizations with diverse services such as business plan competitions, entrepreneurship conferences, and others 7. Infrastructure (access to technical services) 8. Access to business-related services (e.g., consultants in technology, law, investment, business administration)
Human Capital	9. Qualification level of the labor market 10. Educational institutions with tertiary education and entrepreneurship education
Markets	11. Corporate and foreign networks and access to multinationals 12. Home market with sufficient volume for the first growth phase

Regarding the factor group “Finance,” Richter et al. (2016) and Lee et al. (2015) provide some evidence that regional ecosystems improve the VC access. Schwarzkopf (2016), as well as Angerer et al. (2017), stress not only the diversity in the form of financing but also the

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institutional structure of funding such as the availability of business angels providing not only equity capital or debt capital but also specific coaching and commitment.

Regarding the factor group “Supports,” Richter et al. (2016) stress that accelerator programs, start-up consultants, and other institutions providing specialized start-up services contribute to the success of emerging businesses, particularly by providing information on business administration and technologies (Acs et al., 2014). Schwarzkopf (2016) finds that non-governmental institutions such as university-affiliated associations or entrepreneurial education programs also have a positive effect on start-ups. Moreover, Schweer and Sahl (2017) consider a high-level ICT infrastructure in particular as relevant for success, and not only for digital start-ups.

Regarding the factor group “Policy,” Richter et al. (2016), Richter and Schildhauer (2016), and Schwarzkopf (2016) note that a transparent bureaucracy as well as low taxes are the most success-relevant factors in this group, particularly at the early stages, but also at the growth stage.

Overall, it remains, that the network-centric entrepreneurship approach considers knowledge spillovers and network effects resulting from spatial concentration of entrepreneurship in entrepreneurial ecosystems as the basis for innovation dynamics and regional development and growth (Huggins and Thompson, 2015).

Other approaches dispute the relevance of cluster success. Kroiß (2003) assumed that the location decision is irrelevant to a digital start-up company’s success. Richter et al. (2016) identify about 175 publications examining the entrepreneurial ecosystem in the period 2000 to 2015, but find little evidence for contextual factors as success-relevant compared to the personal characteristics of entrepreneurs or the founding management team.

Fueglistaller et al. (2008), for example, define entrepreneurship as a process initiated and carried out by individuals, consisting of three main activities: (1) identifying; (2) evaluating; and (3) using business opportunities. Acs et al. (2017b), in contrast, define entrepreneurship in terms of the results of the entrepreneur’s activities: entrepreneurs found businesses with the goal of developing scalable, high-growth companies.

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Both the definition referring to activities and the definition referring to intentions and results mark the general difference in the academic understanding of entrepreneurship. While the entrepreneur of Fueglistaller et al. (2008) seems to be best represented by the business owner who only replicates existing business models to earn a living, the entrepreneur of Acs et al. (2017b) seems to be the creative destroyer. Both concepts are already provided by Schumpeter's dichotomy of the entrepreneur creating new products and businesses models and thus destroying old markets and business models, versus the landlord entrepreneur waiting only for opportunities to earn a living (Schumpeter, 1912).

However, both entrepreneurship paradigms emphasize individual behavior and intentions rather than the contextual factors that support or enhance entrepreneurial behavior and start-up success.

Despite the increasing number of positive findings attesting to the importance of individual contextual factors, Shepherd et al. (2019) conclude that the focus in the literature and related findings confirm that micro-level factors (characteristics of the entrepreneur/founding team) seem to have the most significant effect on start-up success. This consensus, however, may also have methodological reasons. Both the ecosystem approach and the entrepreneurship approach can essentially be characterized by their specific research focus, which isolates either the contextual factors of successful entrepreneurship or the micro-level factors. However, the entrepreneurial process must be considered as consisting of several stages characterized by the interaction of individual, organizational, and contextual factors (Shepherd et al., 2019).

### **Research Design**

A systematic literature review by Köhn (2017), which also considers 58 articles on start-up valuation determinants, finds that business model characteristics, founder and team characteristics, and financial information are the core information collected and evaluated in the assessment process. This finding suggests that VC investment managers are highly informed experts and that VC investment practices also seem to be based on multidimensional models of entrepreneurial success.

This chapter draws on original research using a multi-perspective approach to examine the three dimensions of entrepreneurship research from the perspective of VC investment managers in

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an explorative manner. The research aims to explore the relative importance of and interaction between specific factor groups and subfactors across dimensions with regard to digital entrepreneurship. To this end, one reference model for each main research perspective was operationalized and used as a basis for data collection through guided expert interviews: first, the Isenberg model as a reference model for contextual factors; second, the Osterwalder–Pigneur business model approach as a model for business model components (Osterwalder and Pigneur, 2005); third, the Giessen–Amsterdam model as a personality factor model (Rauch and Frese, 2000; Rauch and Frese, 2008). However, the focus of this chapter is specifically to present the exploratory research at the macro level. This is reflected in the two RQs defined.

The Isenberg entrepreneurship ecosystem model (Isenberg, 2010, 2011) used to operationalize this contextual factor dimension is commonly used in entrepreneurship ecosystem research (Bernardino et al., 2019). Isenberg (2011) includes six factor dimensions (factor groups) that affect start-up activity and performance in the regional ecosystem set-up or at the national level, all of which are measurable and thus manageable (Mcquaid, 2002; Bröcker and Fritsch, 2012; Lasch et al., 2013). The six factor groups include 12 subfactors, which can be categorized as follows (Table 9.1). Nevertheless, empirical research based on the entrepreneurship ecosystem model has yet to provide conclusive evidence for the influence of individual factors of the Isenberg model or the interactions between these factors and start-up entrepreneurs on new ventures' emergence and performance (Roundy and Fayard, 2019). For example, Feld (2012), Carayannis et al. (2016), and Spigel (2017) find that vital entrepreneurial clusters show higher concentrations of ventures and new products, and a higher degree of innovativeness. Therefore, recent studies have questioned the relevance of ecosystem governance and regional policy.

Future research should focus more on the specific effects of the Isenberg model's factor groups on entrepreneurial activities and performance (Roundy and Fayard, 2019; Kansheba and Wald, 2020). Thus, this chapter contributes to filling this research gap by using the operationalized Isenberg factors to structure the first part of the expert interview guide.

Regarding RQ1, the experts were first asked about the success relevance of each factor group included in the Isenberg model. A visual rendering of the model and additional explanatory notes were provided on a handout for interviewees. Second, the experts were then asked to select a maximum of three factor groups that they believed had the greatest influence on the

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success of a digital start-up and to weight them so that the sum added up to 100 percent. In the final step of the first part, experts were asked to explain the reasons for in more detail.

RQ2 asks about the success relevance of each of the three factor dimensions as a percentage of overall entrepreneurial success. The data for answering RQ2 were collected in the second part of the interview. Again, visual renderings of the three relevant models (the Isenberg model, the Osterwalder–Pigneur business model and the Giessen–Amsterdam model) and additional explanatory notes were provided on a handout for interviewees.

The questions on the weighting of the success factor groups and the factor dimensions serve as introductory questions in both interview parts. These quantitative factor weightings were represented by descriptive statistics. The qualitative data obtained in each case subsequently follows the qualitative content analysis.

Experts were identified using the member list of the German Federal Association of the Digital Economy (BVDW), which also lists start-up investors focusing on digital ventures. Based on this list of 725 potential experts and an initial mailing by e-mail or messaging via the professional online business network LinkedIn, 77 experts were recruited and interviewed mainly either face-to-face, over the phone, or in videoconferences between August 2018 and February 2019. A total of 731 statements were collected, and following the qualitative content analysis of Mayring and grounded theory methodology, categorized in a three-stage-procedure (open, theoretical, and selective coding). Coding was based on the model-theoretical references provided by the factor models for each research perspective. However, since the research questions to be answered here refer to the context perspective, only the statements on the contextual factors were considered and analyzed in the context of this study.

Finally, it is important to note that prior to the start of the interview, a filter question was used to confirm that the interviewee was indeed an active professional investment manager making decisions on the funding of digital start-ups.

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### **Sample Description**

All 77 VC managers surveyed make investment decisions in the context of digital start-ups according to the introductory filter question. Thirty-five of them have been working in this field for more than five years (45.5 percent), and 24.7 percent of the experts surveyed have ten or more years of professional experience to draw on. Forty-two of the experts surveyed (54.5 percent) have up to five years of experience as investment decision-makers. The mean value is seven years of professional experience, the median is five years.

Regarding the job description, 5.2 percent of the interviewed experts are analysts, 11.7 percent are chief executive officers (CEOs) of a VC company, another 11.7 percent are department heads in a VC company, almost 17 percent are managing partners, 22.1 percent are managing directors, and 27.3 percent consider themselves angel investors. The remaining 5.2 percent have other professional roles and responsibilities.

In terms of assets under management on a three-year average, 58.2 percent of the interviewed investment managers surveyed have assets of up to €10 million under management; 9 percent manage more than €100 million. The assets under management, that is, the sum of cash, deposits, and shareholdings' market value, range from €40 000 to €1 billion.

Thus, not only do the experts interviewed represent long-term professional experience in investing and financing in the field of digital start-ups, but it can also be assumed that their investment experience gives them sufficient empirical knowledge to assess the financial risks of future investments in digital start-ups.

Fifty-five percent of the managers estimate that their investment decision success rate is close to 60 percent, 45 percent claim that it is more than 60 percent, and 11.3 percent estimate their investment decision success rate as less than 20 percent, whereby the location parameters indicate nearly a normal distribution of the self-assessments of investment decision success rates (mean = 56.1 percent, median = 60 percent). Consequently, it can be assumed that the interviewed experts are not characterized by overconfidence concerning their investment skills.

To sum up, this sample includes VC managers as experts for digital start-ups, whose performance and experience in investing larger amounts of fund capital in digital start-ups has a positive impact on their assessment of the associated risk. While all three success factor groups (the personality of entrepreneurs and founding teams, the start-up business model, and

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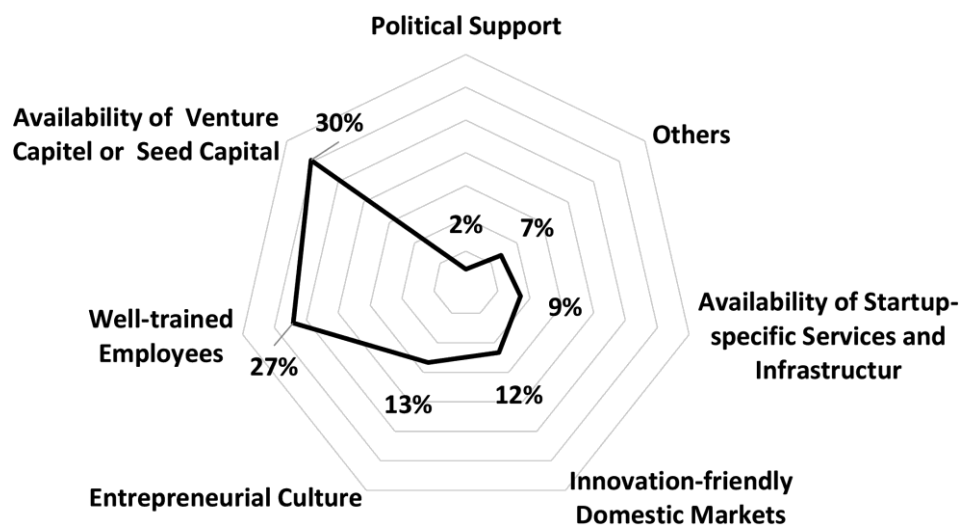
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ecosystem factors) have an influence on the assessment of investment risk, this study focuses only on the contextual factors in the following.

**Effects of Contextual Factors on Start-up Entrepreneurship Performance**

In the second part of the interview, and after an introduction to the models, the investment managers are asked to weight the success relevance of the Isenberg factors, representative of the contextual factors dimension, and that of other factor dimensions. The group of contextual factors was weighted by the interviewees as the least relevant to success, with an average of 21 percent success relevance (see Figure 9.2 in the ‘Key Findings’ section). It can thus be noted that contextual factors are considered by the interviewed managers as the factor dimension with the lowest explanatory power for the success of a start-up.

Among the contextual factors, the interviewed experts suggested that political support, an entrepreneurial culture in society, the availability of start-up-specific consulting services and infrastructure, and a domestic market with an affinity for innovation, have little or no relevance (Figure 9.1). In contrast, the availability of well-trained employees and VC or seed capital is considered highly success-relevant (Figure 9.1).



**Figure 9.1** Success relevance weighting means of contextual factors (%) (N = 77)



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In the last step of the first part of the interview, experts were asked to explain their reasoning behind their Isenberg factor weightings, resulting in 231 statements referring to these six contextual factors.

The factors identified as having the highest weighting are: (1) the availability of VC and seed capital; and (2) the availability of well-trained employees (Figure 9.1). Sixty-two statements were coded referring to the relevance of well-trained employees, and 69 to the topic of availability of VC or seed capital, with both providing the basis for the qualitative analysis, as these factors show the highest weighting (Figure 9.1).

Expert 9 (Ex9) notes what first appears to be applicable for companies in general, regardless of firm age: the availability of well-trained employees. However, the specification in the second part of the statements indicates the difference to mature companies: the issue of acquiring specialists, as start-up companies only have limited resources at their disposal to hire highly qualified personnel (see Ex44 in Table 9.2).

The difference between start-ups and mature companies is also addressed by Ex26, Ex32, and Ex42 (Table 9.2). They all emphasize the need for well-trained employees, especially at the beginning of the company life cycle. Ex7 states that a critical mass of human capital is needed at the beginning; a metaphor for the fact that there must be a necessary minimum quantity of skills required for a chain reaction of creativity and impetus (Table 9.2).

**Table 9.2 Selected statements on the availability of well-trained employees**

<i>ID</i>	<i>Statement</i>
Ex4	“So, the entrepreneur urgently needs to find good employees to compensate for my own missing skills.”
Ex5	“Developers and marketing experts are of particular importance within the framework of well-trained employees.”
Ex7	“The critical mass of well-trained people, the right people, they must be there.”
Ex8	“If I want to set up a big eCommerce business, I go to Berlin or wherever I think there are good people with the right professional background.”
Ex9	“Well-trained employees are also important, because they are difficult to get, difficult to replace and are difficult to hire.”
Ex10	“Employees are the most important thing. Well-trained is similar to being able to learn.”

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Ex12	“Employees: there are hardly any start-ups where the founding team can do everything on their own. If you go beyond a certain point, you can no longer implement everything on your own. But the conditions have changed. At the moment, there are hardly any qualified employees.”
Ex13	“Employees are important, if you can’t recruit a good team, then you can’t make an idea a success.”
Ex25	“However, if you have well-trained employees, the ‘domestic market’ factor can be easily neglected.”  “The availability of capable employees can compensate for many personal weaknesses.”
Ex26	“Well-trained employees are important so that a powerful team is at the start right from the start. In the course of the start-up, I can fall back on other, ‘worse’ employees, whose performance is in the good midfield. But especially in the beginning I need these spearheads.”
Ex32	“Employees are important, and I need to see them. It is very important to start in an environment where I can see and get to know the people (the future employees). Quality, skills, handling, chemistry, etc. are all very important and cannot be properly integrated in so-called remote teams. I am not a big fan of remote teams.”
Ex35	“You need halfway qualified human capital. That’s what you find in cities and clusters, otherwise you can’t scale up.”
Ex36	“Well-trained generalists are important, not just specialist idiots.”
Ex42	“Good employees are also particularly important. Especially now, when you need a lot of data scientists, you need more data scientists than are available, and many digital start-ups are in areas and environments where people know their way around.”
Ex44	“Later, when I scale, it doesn’t matter that people are available in physical proximity. Then it works differently, because I can offer something, and the company is a magnet itself.”
Ex47	“Especially in the first year, it is really important that I have the people and employees around me. In later phases, it is not so important. Then my company is up and running, and the higher the number of employees, the easier it is for me to make plans.”
Ex54	“In the beginning, people have to sit together, and you do not want a team only working remotely, that won’t work.”
Ex55	“If you have really good talents on board and the corresponding capital, then these talents also create new markets.”
Ex70	“That is why the training of the people in my team is so important. You can’t build a company without a good team ... technology-oriented employees and product managers.”
Ex76	“As a rule, the better digital start-ups are at the locations where the universities are, especially because of the IT [information technology] staff. That’s the difference between university education and work experience.” “There is a shortage of good developers. This bottleneck has a great influence on the growth of the companies.”

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However, the critical mass for a successful launch of the business model or the innovative product or service cannot be created by locally distributed teams (remote teams). As suggested by Ex32 and Ex54, a close local connection is required (Table 9.2). In addition, start-ups need a heterogeneous team of specialists and generalists (see Ex36 in Table 9.2). Moreover, Ex4 and Ex25 emphasize that the employees' skills need to complement one another (Table 9.2).

As noted by Ex12, the local concentration and complementary heterogeneity of the start-up team are key prerequisites for turning an invention or a business idea into an innovation (Table 9.2).

The need to aggregate a critical mass of heterogeneous competencies at a single point in space and time is crucial in the case of digital business models in particular. Paradoxically, digitalization increases the importance of qualified potential employees living in geographical proximity, despite the general shift toward delocalization of the division of labor caused by digitalization. Expert skills, particularly technical ones, are required not only for programming but also for product management and marketing (see Ex5, Ex70, and Ex76 in Table 9.2). The latter are key to rapid business model scaling and especially internationalization (see Ex25 in Table 9.2). For this reason, digital start-ups often prefer larger cities or university towns (see Ex8, Ex35, and Ex76 in Table 9.2).

To sum up, the concentration of heterogeneous but complementary skills and competencies at a single point in space and time, which is necessary for the early company life cycle, results in the critical mass required for the initial phase in a successful start-up's life cycle. In the growth phase, a successful start-up company usually attracts a much larger and more diverse pool of potential human resources (see Ex44 and Ex47 in Table 9.2 for discussions of this kind of pull effect).

In contrast, the availability of VC seems to be more success-relevant during later stages. According to Ex6, VC is needed to turn an invention into an innovation, and to scale the business model in the start-up and growth phases (Table 9.3). Ex9 likewise argues that VC becomes an important issue during the growth phase (Table 9.3). That said, financial resources, as Ex21 points out, are important in all phases (Table 9.3).

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Six experts (see Ex9, Ex15, Ex16, Ex26, Ex36, Ex67 in Table 9.3) agree that VC is needed to scale the product and/or business model. More specifically, VC might be spent to overcome barriers to entry, according to Ex77.

Several statements point to country-specific differences concerning VC availability (see Ex12, Ex18, Ex24, Ex31, Ex72 in Table 9.3). For example, Ex18 states that in Silicon Valley—in contrast to Germany—money flows faster and ideas and inventions can therefore also be realized more quickly (Table 9.3). It could be concluded that the major problem for German start-ups is not the lack of real inventions, but the scarcity of VC compared to the United States (US). Nevertheless, Ex12 argues, “Good ideas always find investors” (Table 9.3). The ecosystem-specific availability of VC can thus be considered a necessary but not sufficient condition for start-up performance.

Regarding both major success factors at the macro level—well-trained employees and the availability of start-up or venture capital—Germany as an entrepreneurial ecosystem is characterized by a limited availability of well-trained employees and a relatively limited availability of VC. Both issues could represent major bottlenecks for start-up growth (see Ex76 in Table 9.2 and Ex77 in Table 9.3). Ex24 also explains that policy-makers in Germany have yet to create a tax-friendly model for VC and that the total volume of VC is therefore too low compared to other countries (Table 9.3). Ex31 even notes that in the cases of the US and Israel, creativity or the level of innovativeness is less important than the ability to implement an invention. The ready availability of VC, as a funding option during the seed phase, allows start-ups to market an idea much more quickly. This is desirable for two reasons: first, they can realize the pioneer premium as a prerequisite of an acceptable return on VC investment; second, entrepreneurs are more likely to take entrepreneurial risks.

**Table 9.3 Selected statements on availability of VC**

<i>ID</i>	<i>Statement</i>
Ex1	“Many projects/objectives ... which I can advance more quickly with the help of VC.”
Ex6	“For the very, very early phase, the availability of venture capital is therefore not so important. Later, however, VC becomes increasingly important as the company scales up.”
Ex8	“This salary issue can somehow be covered by state subsidies. In my opinion, however, regional funding is not the reason why the start-up rate is high in these places.”
Ex9	“The available capital is therefore particularly important for the growth of a company.”

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Ex11	“In the last 25 years I do not know of a single case in which funding has led to success.”
Ex12	“You hear again and again: There is too little venture capital in Germany. The truth is, however, that it’s not about the amount of the individual investment. Good ideas always find investors.”
Ex15	“And the VC and PE funds are only important in later stages of development.”
Ex16	“When I have money, I do my thing. That is still the most important thing to grow.”
Ex18	“In Germany, it is unfortunately still the case that many people think that the state will fix it. Quite different from Silicon Valley. A lot of money flows there. The money is available and wants to be invested. And money is, in fact, necessary to get something going quickly.”
Ex21	“Good financial resources are always important. If you want to scale up, that is very important. There are also people who build a good start-up without VC, but that is not the rule. To be able to start quickly, VC is important.”
Ex24	“Politics has not yet managed to create a tax-friendly model for venture capital.” “Although the availability has increased because foreign investors are now also entering the market. But compared to the USA or Israel, the money is still very little.”
Ex26	“VC is important particularly when scaling of digital business models.”
Ex31	“80% success relevance—start-up capital is the most important. Silicon Valley and other clusters exist only because of capital and money ... Investors have clearly invested in these areas and thus pushed them. Israel, the same thing. The Israelis are not that creative, but there is money. You can get everything there—from 10 000 to 10 million.”
Ex36	“Without capital, there is no scaling. Many founders underestimate this. The iteration takes at least 3 to 5 months, and many underestimate that.”
Ex52	“A VC investor is, in any case, a good indicator that the idea is also economically successful.”
Ex67	“Later, you definitely need growth capital to scale. But at the very beginning, that doesn’t really matter for digital companies.”
Ex72	“In Germany, it is still very difficult to get money. If you don’t get the first revenue and the first profit immediately, then it doesn’t fit for most VCs.”
Ex77	“With regulated markets such as we have here in Germany, enough capital must be available so that the market entry hurdles (e.g., time hurdles) can be bridged.”

Another issue concerning country-specific effects involves the return expectations of VC investors. Ex72 states that VC investors in Germany tend to expect a quick return on investment (Table 9.3). This observation, however, could also be interpreted as another indicator of the relative scarcity of VC in Germany. If a very limited number of investors can choose among a multitude of start-ups, they will probably pick those with a maximum probability of return, and not those with more complex business models requiring longer investment periods. Moreover,

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Ex8 notes that state support cannot replace a comparatively small volume of VC (Table 9.3). This is also true as VC can be considered an allocation mechanism different from state funding; a point raised, for example, by Ex11 and Ex52 (Table 9.3). Therefore, one may conclude that from the economic policy perspective or the cluster management perspective, the lack of VC cannot be replaced by state funding. Seen in this light, building an artificial entrepreneurship ecosystem has clearly defined limits, particularly in the context of the success relevance of the availability of VC, as also suggested by the findings of this study. This also applies to another important role of VC investors, namely as proof-of-concept indicators (see Ex52 in Table 9.3).

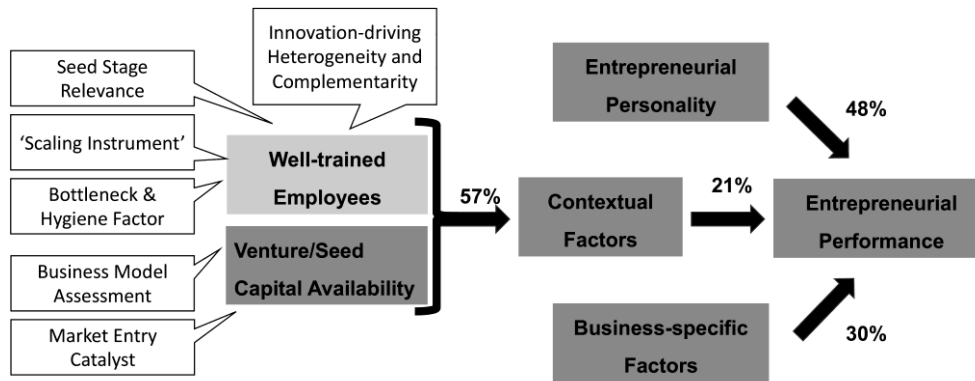
**Key Findings: The VC Perspective on Contextual Factors**

Concerning RQ1, the results of this study show that two out of six factors are perceived as highly success-relevant by the interviewed experts. Four other entrepreneurial ecosystem factors—political support of entrepreneurship, entrepreneurial culture, innovation-friendly domestic market, and the availability of start-up-specific services and infrastructure—are rated as less important or not important at all.

An analysis of qualitative data on the two relevant success factors identified here yields two important insights (Figure 9.2). First, the availability of VC is a catalyst for market entry, overcoming market barriers, and growth (scaling and internationalization), and it is an indicator for the maturity and marketability of an invention or business idea. Accordingly, several financing rounds are also an opportunity to discuss and test the product maturity or business model maturity again. Second, the availability of well-trained employees is the essential success factor or a considerable bottleneck factor, especially in the seed phase and for more complex, technology-based products, which may explain why these start-ups emerge or are located in large cities and/or close to universities. Moreover, the availability of well-trained employees is the basis for heterogeneous and complementary founding teams. This combination is needed to start entrepreneurial and innovation processes in which an idea or invention of a founder-entrepreneur or a founding team evolves into one with market maturity and market launch, especially one directed by interdisciplinary teams.

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*Note:* Details for the dominant factor groups result from the discussion of statements

**Figure 9.2** Specification of success-relevant contextual factors and weighting of factor groups

While these two factors are deemed relevant, contextual factors in general are perceived to be the least relevant among the three factor dimensions (Figure 9.2). Personality factors are seen as the most important ones, while the business idea (business model) is seen as the success factor having the second-highest impact on start-up performance.

In light of these findings, one could conclude, also in response to the RQs considered here, that the effect of contextual factors on entrepreneurial performance as considered by the VC managers is very small compared to the two other factor groups (personality and business-specific factors). Moreover, only two factors of the factor group are found to be dominant, with the VC managers estimating that both factors together might explain 57 percent (average of all weightings for both factors) of the entrepreneurial performance. Therefore, it can be concluded that micro-level factors (personality characteristics) and meso-level factors (business idea and model) should be considered as more success-relevant than contextual factors. These results seem to support the findings of prior research, questioning the success relevance of contextual factors. As mentioned, the systematic literature review by Richter et al. (2016), based on 175 publications on entrepreneurial ecosystems published between 2000 and 2015, has found little evidence for contextual factors as success-relevant, in contrast to the success relevance of the personality characteristics of the entrepreneur or the founding team. That said, this literature

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review also has found that access to finance and knowledge can have a positive effect on start-up performance, a finding that is also supported by those of this study.

As already discussed, Roundy and Fayard (2019), as well as Kansheba and Wald (2020), question the relevance of the Isenberg model as an academic construct in research and practice. Even Isenberg (2013) assumes that the entrepreneurial ecosystem can help researchers to understand entrepreneurial activities in general, but that factors such as political support or the existence of the entrepreneurial culture are not success-relevant for the individual entrepreneur. Acs et al. (2017a) argue that entrepreneurship studies do much to address the gap in the economics literature on the role of entrepreneurship in economic systems. However, they largely ignore the role of systems when seeking to explain entrepreneurship performance. Based on both studies, as well as the results of this contribution, it may be concluded that the success relevance of artificial entrepreneurial ecosystems in the form of, for example, regional clusters to support entrepreneurship has very narrow limits. This is all the more true today, with digital technologies supporting decentralized, cross-country activities not only in the area of sales but also in the areas of sourcing and production, enabling companies to move essential business activities from one country to another in the shortest possible time and at little cost.

However, it can be argued that although contextual factors are classified by the interviewed VC managers as less relevant for the success of digital start-ups, both contextual factors identified as success factors can be regarded as hygiene factors (Figure 9.2), which may prevent negative outcomes such as failure but do not affect the outcome in form of start-up performance (Ostergaard and Marinova, 2018). For obvious reasons, available human capital and VC without entrepreneurial energy and motivation will remain unused resources. In this sense, the availability of VC and a diverse, well-skilled workforce is a necessary precondition for digital start-up success, but not a sufficient precondition. For the latter, it takes the Schumpeterian entrepreneur to acquire and recombine existing resources to achieve entrepreneurial success. However, without these core resources concentrated in time and space, entrepreneurial energy and motivation can hardly rise beyond the invention phase. Thus, both contextual factors provide the ground for the quick realization and transformation of an invention into innovation. It is needed for the subsequent scaling up and thus the faster growth of a start-up company in the launch phase to benefit from the pioneer bonus for a longer period. Thus, it is likely that despite the tendencies of delocalization of workplaces and work forces even in Silicon Valley

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(Flickinger, 2020), a certain spatial proximity to a culture of knowledge and entrepreneurship is still necessary to profit from network effects (Delgado et al., 2014). Although digital ICT increasingly allows companies to coordinate the collaboration of a remote workforce, the creation of ideas still seems to require face-to-face interaction, which cannot be offset by a “digital proximity,” as empirical research in the cognitive psychology of entrepreneurship suggests (e.g., Hayton and Cholakova, 2012). Accordingly, the main value proposition of artificial clusters, and thus their unique selling proposition (USP), might be their potential for network effects, because innovation requires a critical mass of creative potential in face-to-face proximity (Elia et al., 2020). Moreover, the regional concentration provides a higher density of business opportunities for VC investors, thereby facilitating a higher density of possible investment targets which, in turn, decreases search costs. Finally, it can be assumed that the regional concentration of start-up activities attracts a larger pool of more entrepreneurial and well-trained human potential as a resource to leverage even non-performing start-ups to reach a critical mass of innovative capability.

### **Future Research**

This contribution is an explorative, qualitative study that proposes a preliminary multi-perspective model of entrepreneurial success in the sense of the grounded theory, and that provides a more detailed examination of one of these factors. For this reason, this chapter cannot be discussed in terms of reliability, validity, or robustness of models.

Instead, one major contribution of this study is the triangulation of qualitative and quantitative data, allowing to define a working model. While contextual factors may be neglected in explaining entrepreneurial performance, the working model thus reduces the possible research perspectives to business-specific factors and entrepreneurial personality. One of the drawbacks of the explorative design of this study was the focus on 77 experts, a number that, ideally, would be much higher. Furthermore, the analysis of numerical data in the form of weightings of individual factor group items and the success relevance of the factor groups in total can only be considered an approximate estimation, but cannot replace the statistical analysis of quantitative data in the context of a questionnaire-based survey with a higher number of cases. Therefore, further research must consider a multi-theoretical view by including three main research

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perspectives representing the micro, meso, and macro level of entrepreneurship activity, in order to assess the relevance of all possible factor dimensions in the entrepreneurial process.

It is not necessary to differentiate between a business ecosystem and a digital business ecosystem, where the collaboration and knowledge exchange between the actors take place only via ICT, with this multi-perspective approach. Even if a business ecosystem is not necessarily based on digital forms, current developments suggest that business ecosystems will hardly survive today without digitization.

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e. CAN BUSINESS MODEL COMPONENTS EXPLAIN DIGITAL  
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Schumacher, N. (2022). Can Business Model Components Explain Digital Start-up Success? A Qualitative Analysis of the Business Models of Start-ups from the Perspective of German Venture Investors. *Economic Thought and Practice (EMIP)*, 31(1), 81-98.  
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**Abstract**

This study explores the success relevance of business model components of digital start-ups from the perspective of German venture capital (VC) investors. In doing so, the study explains the importance of the business model in general and the importance of a convincing value proposition and a plausible revenue model in particular for the investment decision process of VC investors. The study takes an exploratory three-dimensional research approach that integrates the meso-perspective on the business model, the micro-perspective on the entrepreneurial personality, and the macro-perspective on the entrepreneurial context, thus operating in a very young research field. In contrast to most studies on this topic, this paper shows that the business model is not the key resource for the success of a start-up, while an early concept of a business idea might be. Whereas communication and interaction with VC investors at this early stage can be valuable tools for the continuous development of the initial business idea.

**Keywords**

Start-up Success, Entrepreneurship, Business model, Venture capital investors, Value Proposition, Revenue Model, Digital Start-up

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## **Introduction**

Over the past decade, the economic importance of start-ups has increased. Start-ups and innovative ventures have increasingly become the focus of politics, the media and the public (Hahn, 2014, pp. 7-10). Moreover, smart, sustainable growth through innovation increasingly requires successful entrepreneurship (Organization for Economic Co-operation and Development [OECD], 2010, pp. 4- 6). As a result, governments and other stakeholders have sought to create conditions favorable to entrepreneurs and their new businesses, which have also increasingly received attention in academic research (Mason & Brown, 2014; Zahra et al., 2014, pp. 480-481).

With the advent of the digital economy, companies and entrepreneurs have come to identify new opportunities driven by technological innovations in information technology, telecommunications, media, and entertainment (Arlott et al., 2019, pp. 1-5). Platform business models offer companies in today's digital economy the opportunity to create value on a virtual level (Aloulou, 2019, pp. 190- 195). In addition, many of the traditional barriers to founding a business have disappeared: Companies providing digital services can be founded with lower financial expenditure and advance payments than before. At the same time, the importance of the business model, i.e. of the value creation model, seems to have increased. In this respect, digital entrepreneurship (e-entrepreneurship) and classic entrepreneurship are different (Arlott et al., 2019, pp. 4-8; Wirtz, 2019, pp. 35-49). Consequently, the renewed interest in entrepreneurship has thus also affected the attention paid to e-entrepreneurship over the past decade (Baierl et al., 2019, p. vi).

Although newer forms of entrepreneurship differ considerably from older ones, entrepreneurship research remains tied mainly to classical approaches that emphasize the importance of personal characteristics. However, the entrepreneurial context has also received attention recently, particularly in research areas with a political-consultancy interest (Alvedalen & Boschma, 2017; Malecki, 2018). In contrast, few studies have examined aspects such as business models at the corporate level. Witt (2012), for example, argues that entrepreneurship research largely neglects the business dimension of start-ups.

Zahra et al. (2014) further distinguish two different directions in entrepreneurship research, each using different definitions of and perspectives on actors and contexts: First, research on individual behavior and personality characteristics of the entrepreneur; in terms of more

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*general entrepreneurship research*, the personality, human capital, and actions of entrepreneurs or entrepreneurial actors. Thus, this kind of research focuses primarily on the actor, and when it does consider the context, it does so only to a very limited extent. The Anglo-American tradition refers to this perspective as *independent entrepreneurship research*; in contrast, corporate entrepreneurship research is not part of entrepreneurship research but rather innovation research dealing with larger companies and firms (Eckardt, 2015, p. 12). Second, *contextual research*, which examines the behavior and spatial interaction of entrepreneurs and firms in the context of spatial business networks, is commonly referred to as *regional cluster research*. Accordingly, the focus is on contextual factors of entrepreneurial activity, such as regional clusters (groupings) or other economic geographical factors. The *concept of the entrepreneurial ecosystem*, which describes the self-reinforcing interaction of spatial concentration of founders, is also used in this field. A third perspective on start-up success draws on *business model research* (Ladd, 2018, p. 59). Starting with a business idea that aims to fill a market gap, business modeling is concerned with the composition and configuration of resources and activities inside and outside the company to achieve that goal. In this sense, the business model provides how the start-up intends to create and capture value. In doing so, research assumes that the business model significantly influences the new ventures' performance (Gruber, 2007; Ladd, 2018; Zott & Amit, 2007). In the German-speaking world, however, entrepreneurship research remains focused on research of the founder's personal characteristics (Blum & Leibbrand, 2001, pp. 15-16).

Shepherd et al. (2019), while confirming the dominance of actor-centered research in their systematic literature review, suggest that an expanded approach should be developed. This approach sets itself apart from traditional monism and dualism by integrating all three perspectives on entrepreneurial success: business model-specific characteristics, the entrepreneurial ecosystem, and entrepreneurial personality. This study follows this call by examining the relevance of success characteristics at all three levels for digital start-ups from the perspective of German venture capitalists (VCs). This article also draws on the original empirical research. It addresses two research questions (RQs): First, to what extent do single business model characteristics (meso-level research) influence the economic success of a digital start-up from the perspective of German venture investors? Second, to what extent do groups of success characteristics (micro-, macro-, and meso-levels) differ in terms of their

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contribution to the economic success of digital start-ups from the perspective of German venture investors? To answer these two questions, this article first reviews the current debate on research on high-growth companies and its implications for success factor research and the further development of classical approaches to business model analysis. In the next step, the researcher examines original data from semi-structured interviews with 77 VC investors on the three dimensions of entrepreneurship research.

This empirical study shows that from the perspective of German VC investors, business model components of e-entrepreneurship, such as a *plausible value proposition* and a *plausible revenue model*, are the most relevant predictors of success. Furthermore, VC investors view the overall group of business model components as less important than the group of personality characteristics but as more important than the entrepreneurial context. The business model is not the key resource for a start-up's success, whereas an early concept of a business idea can be. Therefore, communication and interaction with VC investors at this early stage can be seen as valuable tools to improve upon the initial business idea.

## **Theoretical Perspectives**

Empirical research on high-growth companies has provided conclusive evidence on companies' growth patterns and sources in early company lifecycles (e.g., Acs et al., 2008; Autio et al., 2000; Barbaro et al., 2014). However, insights into success factors are only a by-product of this research approach. It is ostensibly crucial to identify companies and industries with above-average growth potential as early as possible to promote these companies with targeted economic policies (Henrekson & Johansson, 2010). According to the OECD definition (Cassia et al., 2009; Hoffmann & Junge, 2006; Schreyer & OECD, 2000),

High-growth enterprises, as measured by employment (or by turnover), are enterprises with average annualised growth in employees (or in turnover) greater than 20% a year, over a three-year period, and with ten or more employees at the beginning of the observation period (OECD, 2011, p. 74).

Key findings of research on high-growth companies in terms of success factors and the variables selected for this study include the following: First, companies only grow at a rate of over 20% in a short phase of the business lifecycle (Acs et al., 2008; Hölzl, 2009). Second, fast-

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growing companies are more likely to have a higher debt ratio (López-García & Puente, 2009). Third, smaller companies grow faster because of higher efficiency in more agile and informal structures (López-García & Puente, 2009). Fourth, fast-growing companies usually do not include start-ups but rather larger small businesses (Acs et al., 2008; Coad & Rao, 2010). Fifth, internationalization leads to higher growth (Henrekson & Johansson, 2010). Sixth, higher innovation intensity can explain the rapid growth of small businesses, while larger companies tend to take fewer risks and therefore focus instead on incremental innovation (Carznitzki & Delanote, 2013).

Scholars have criticized research on high-growth companies for its reliance on and use of qualitative factors. For example, Fadahunsi (2012, pp. 105- 110) identifies a very high number of variables in about 25 areas of the field. Dobbs and Hamilton (2007, pp. 296-300) recommended that research designs be based on quantitative variables instead, quantifiable factors rather than soft factors and non- structured or non-numeric data such as strategy skills, customer knowledge, or leadership style. However, there is the problem that research can be based only on publicly available data, for example, annual reports. However, in countries such as Germany, this only applies to larger and stock-listed companies required to publish their annual report by international standards (IFRS). This publicity obligation is generally irrelevant for start-ups. Furthermore, it does not exist in principle for sole traders and partnerships, making it impossible to conduct studies on many different types of companies. Furthermore, publicly released financial data is only of limited value because this kind of data only allows researchers to make inferences regarding a company's performance to a small extent.

However, business models are not uniformly or unambiguously defined in management practice or the academic literature, not at least because the concept of the business model as an analytical instrument is still a relatively recent phenomenon. Moreover, the development of this concept is closely related to the digitization of the economy and the accompanying questionability of existing business models due to disruptive technologies, such as those that can be observed in the media or retail industries (Burkhart et al., 2012, pp. 1-19; Stähler, 2002, p. 37). The revenue model approach, the process model approach, and the core competence concepts are among the classic approaches to business model analysis (Paul & Wollny, 2011, p. 66). While the revenue model approach deals with the company's revenue structure

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(Bodendorf & Robra-Bissantz, 2003, p. 165), the process model approach analyzes the company's core processes (Adam, 2009, p. 20). The core competence approach creates a basis for management decisions regarding restructuring strategic processes (Xaver & Hass, 2009, p. 32). All three approaches consider different elements of a business model.

Hoppe and Breitner (2003, p. 199) identify three essential components of a business model: a business activity model, a financing model, and a market model. These three components can be seen as overlapping: A market model requires a financing model that explains how the company will finance a business model or product until it is available. At the beginning of the product life cycle or the company life cycle (in the case of a start-up), there are costs but no sales or revenues, and therefore no profits. The activity model models the internal value creation: the production of services by existing resources and competencies. Finally, the market model analyzes the situation in terms of competition and demand. However, neither the financing, activity, or market models can fully explain how revenue sources can be developed (Kraus, 2005, p. 121).

Furthermore, the three classic approaches to business model analysis (revenue model approach, process model approach, core competency approach) represent an internal view of business models and consider the value chain as an in-house process. The internal organization of production factors, processes, services, and core competencies creates value. Suppliers, customers, or service providers, exist outside firm boundaries, but they are only supporting elements and not essential components of the value creation process. For these reasons, the approaches and models discussed are of little use for practitioners, as they do not allow for integrated and holistic analyses of business models (Markowska, 2011, p. 163; Tapscott et al., 2000, p. 198; Wirtz, 2001, p. 215).

Osterwalder and Pigneur (2010) developed an integrated business model approach to solve these problems of classic business model concepts. The purpose is to develop a practical tool for business model analysis, restructuring existing business models, or systematically modeling new business models following a design approach (Lehmann, 2012, p. 48). In addition, they do not consider a company as an aggregate of business functions, such as procurement and production, but as a network of stakeholders and specific key processes and resources that take effect along the value chain, thus closing the vacancy discussed above (Osterwalder & Pigneur, 2010, pp. 16-27).

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More recently, there has been an increase in theoretical and empirical studies on business model innovation. Osterwalder and Pigneur's model (2010) is often included as an approach, although there is not yet a universally accepted system for describing business models (Schallmo, 2013, p. VII). Despite its widespread use in entrepreneurial education, only a few empirical studies have used this approach to examine start-up success factors at the business level (Ladd, 2018, p. 57). However, this classification is helpful for this study because it provides a basis for querying expert knowledge to identify relevant qualitative success factors at the company level. Furthermore, business model design and innovation have been very much concerned with serial business model design or serial entrepreneurship (Dabić et al., 2021; Schallmo, 2013, p. 2). The digital economy reflects this development. On the one hand, founding several start-ups in close chronological succession is typical, or the changing conditions of start-up founding are becoming apparent.

## **Research Design**

A systematic literature review by Köhn (2017), which also considers 58 articles on start-up valuation determinants, finds that business model characteristics, founder and team characteristics, and financial information are the core information collected and evaluated in the assessment process. This finding suggests that VC investment managers are highly informed experts and that VC investment practices also seem to be based on multi-dimensional models of entrepreneurial success.

This article draws on original research using a multi-perspective approach to examine the three dimensions of entrepreneurship research from the perspective of German VC investment managers in an explorative manner. The research aims to explore the relative importance of and interaction between specific groups of characteristics and single characteristics across dimensions of e-entrepreneurship. Initial results on the macro perspective and on an integrated perspective have been published by Schumacher (2022a; 2022b).

To this end, one reference model per each main research perspective was operationalized and used as a basis for data collection through guided expert interviews. First, the Osterwalder-Pigneur business model approach is a model for business model components (Osterwalder & Pigneur, 2010). Second, the Giessen- Amsterdam model is a reference model focusing on the entrepreneurial personality (Rauch & Frese, 2000; Rauch & Frese, 2008). Third, the Isenberg

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model (Isenberg, 2011) is a reference model for the entrepreneurial ecosystem.

For the analysis of the meso-perspective, this study uses the business model approach by Osterwalder and Pigneur (2010) because it is a proven and now widely used form for business model analysis, restructuring existing business models, or systematically modeling new business models according to a design approach (Lehmann, 2012, p. 48). This approach facilitates understanding, discussing, evaluating, and optimizing business models. In doing so, Osterwalder and Pigneur propose nine dimensions to describe business models holistically: Key Partners, Key Activities, Key Resources, Value Proposition, Relationship with the Customer, Channels, Customer Segments, Cost Structure, and Revenue Structure.

This study derives seven business model characteristics from Osterwalder and Pigneur's business model approach (Tab. 1).

**Table 1. Business Model Characteristics**

<i>Dimension</i>	<i>Characteristics</i>
<b>Business Model Components (Meso-Level)</b>	Detailed & Plausible Financial Planning
	Key Partner (Key Supplier) Availability
	Detailed Business Development & Implementation Planning
	Plausible Market Segmentation for Structuring Marketing- & Sales Channel Strategies
	Key Resources Availability
	Plausible Revenue Stream Model
	Convincing Value Proposition

Regarding RQ1, the researcher first asked the experts about the success relevance of each Business Model Characteristic. For this purpose, the experts received a list of the characteristics (see Tab. 1) and additional explanations on a handout. Second, the researcher asked the experts to select a maximum of three characteristics they believe have the most significant influence on a digital start-up's success and explain the reasons in more detail. RQ2 asks about the success relevance of each of the three dimensions. The researcher collected the data to answer RQ2 in the second part of the interview. Again, interviewees were provided with lists of success



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characteristics derived from the three relevant models mentioned above and additional explanations on a handout.

The researcher identified the experts using the German Federal Association of the Digital Economy (BVDW) member list, which also lists start-up investors focusing on digital ventures. Based on this list of 725 potential experts and an initial mailing by e-mail or messaging via the professional online business-network LinkedIn, 77 experts were recruited and interviewed mainly face-to-face, over the phone, or in videoconferences between August 2018 and February 2019. A total of 731 statements were collected and, following the qualitative content analysis of Mayring and grounded theory methodology, categorized in a three-stage procedure (open, theoretical, and selective coding). Coding was based on the model-theoretical references provided by the reference models for each research perspective. The approach taken was deductive-inductive: The categories of the content-analytical category system were derived theoretically (deductive), and the subcategories were developed from the transcript (inductive). The analysis process followed three steps: First, the transcripts of the interviews were divided into coding units (segments). The segments were determined based on content. Second, trial coding was conducted. Third, primary coding was conducted. Finally, it is important to note that prior to the interview, the researcher used a filter question to confirm that the interviewee was indeed an active professional investment manager making decisions on the funding of digital start-ups.

### **Interviewees**

According to the initial filter question, all 77 VC managers surveyed make investment decisions in the context of digital start-ups. Of the 77 experts surveyed, 35 have been active as investment decision-makers for more than five years (45.5%), and seven for 17.5 to 20 years; 42 of the interviewed experts (54.5%) have up to five years of relevant professional experience in the field of start-up financing and investment, while 24.5% of the experts indicated that they had a background of 10 or more years of professional experience as decision-makers for investment or financing. The mean value is 7 years.

About 50% of the interviewed experts had more than 5 years of experience in financing and investment in start-ups (median = 5 years), so the answers to the questions on the success

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characteristics are based on several years of professional experience. In addition, 5% of the interviewed experts are analysts, 11% are chief executive officers (CEO) of a VC company, 11% are department heads in an investment company, 17% are managing partners, 22% are managing directors, and 28% consider themselves angel investors. The remaining 4% of different positions cannot be assigned to one category.

Of the interviewed experts, 50.7% manage EUR 10m of assets under management, 7.8% more than EUR 100m. The volume of the assets under management ranges from EUR 40,000 to EUR 1bn. Thus, the interviewed experts do not only represent long-term professional experience in investing and financing in the field of start-ups. Moreover, the previous statistics show that the experts can draw on considerable professional experience when assessing the risks.

Half of the experts (50%) estimate their investment decision success rate to be 60% or higher, while 50% consider it to be below 60%, while 10.4% estimate their investment decision success rate lower than 20%. The location parameter indicates nearly a normal distribution of the self-assessments of investment decision success rates (mean = 56.1%, median = 60%). Consequently, it can be concluded that interviewed experts are not characterized by overconfidence concerning their investment skills.

To sum up, this sample includes experienced VC investors who, when investing larger amounts of debt capital, rely on their professional experience and assessment of the personality, the business model, and other favorable or problematic contextual factors of start-up entrepreneurship performance.

### **Business Model Effects on Start-up Performance**

Of the seven business model characteristics derived from the Osterwalder- Pigneur business model approach, the interviewed experts identified a convincing value proposition and a plausible revenue stream model as the most relevant for success. Many statements show that the value proposition is not to be understood in a marketing catchphrase but rather a compressed product concept in development, whose product-market fit must be assessed again and again (see Ex42 and Ex61 in Tab. 2). In addition, the development of a product's value proposition must always relate to specific market segments and not be defined in general terms

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(see Ex3 and Ex10 in Tab. 2).

Due to the general dynamics of a start-up and the market, the value proposition continues to evolve. Just like the development of the business model and the iterative process of reflection and further development of the original business or product idea, the value proposition is also subject to a process of fixation and adaptation. New insights about the market, new product features, or new perspectives from focus group discussions demand a dynamic and highly plastic understanding of the unique selling proposition (USP) and the start-up (see Ex26 and Ex59 in Tab. 2).

**Table 2. Selection of Statements on Value Proposition Relevance**

<i>ID</i>	<i>Statement</i>
Ex1	“Is this value proposition transparent and plausible for the customer? It is easier to build a complex business model than a good and simple model.”
Ex3	“I have to get the value proposition across so that the customer understands.” “Convincing value proposition goes hand in hand with market segmentation.”
Ex10	“The value proposition is very important. If you don’t have a reputation or brand image, you have to cater to the customer with a super value proposition.” “Different customers, in turn, require different value propositions. Therefore, good market segmentation is fundamental for a suitable value proposition.”
Ex14	“Many start-ups fail because they don’t manage to formulate a truly compelling value proposition.”
Ex16	“All copy-cat projects work out to some degree, but it’s not very feasible in the long run.”
Ex25	“The very first thing - which start-ups can do better than corporations - is getting the product-market fit right. What is the customer problem? What solution do I have for it?”
Ex26	“You can’t do it without a value proposition. Super important. Moreover, that should definitely be an iterative process.”
Ex30	“Value proposition is also very important. Many start-ups are looking to solve a problem, but not seeking contact with the customer directly at all.”
Ex35	“Do I have a product that people need today or tomorrow? Are people willing to pay money to use it? Can the product be manufactured with a margin? A potentially large market must exist. Supply creates demand. That’s the secret to success.”
Ex36	“If I know what the problem is and can solve that, then yes, I have to be able to transport that. Into the minds of the customers.”
Ex37	“Value proposition must be obvious, easy to explain and convey.”
Ex42	“Product-market fit is the key consideration here as well.”

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Ex50 “There are only two ways: Either I do something new or have already found something that I’m transporting to a new market.”

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Ex58 “Sure, the value proposition is the be-all and end-all – you should at least build something where the added value for the customer could be explained to a schoolchild. It has to be tangible.”

“Copy-paste is the main issue in this area right now. Really bad from the investor’s perspective. Investors will work it out in the intense meetings in the financing rounds.”

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Ex59 “The value proposition is super elementary. Especially when the product is new, you have to know about the benefits and to tell it to the customer.”

“And depending on what the product is, it also needs to be adjusted and changed again.”

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Ex61 “I need to identify and understand the market and develop the right product. Formulating a plausible value proposition indicates understanding the market and having found the right product.”

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Ex70 “A clear value proposition shows: The founding team has developed something relevant, it solves a real problem, and the solution can also be communicated to the customer.”

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Ex71 “Success and financial planning seem too small-bore to me in the early stages – instead of formulating a revenue stream model that emerges from a clear and convincing value proposition.”

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Ex75 “You have to create the benefit and differentiate that from other products.”

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As also suggested by the statements in Table 2 (see Ex1, Ex3, Ex36, Ex37, and Ex58 in Tab. 2), start-ups need to develop a value proposition that is simple and easy. Start-ups may even fail as companies because they cannot create this kind of value proposition (see Ex14 and Ex16 in Tab. 2). Nevertheless, Ex50 sees the possibility to succeed with a start-up even if the value proposition is not new but adjusted for a new market or segment.

Start-ups are unlikely to attract capital if they do not take the formulation of the value proposition seriously (see Ex16 and Ex58 in Tab. 2). As Ex59 emphasizes, value propositions are never self-evident, especially in the case of a new product. Ultimately, a *new product* differs from already available ones. Therefore, when comparing it to other products on the market, the emphasis of the value proposition is on the difference and not on similarity (see Ex75 in Tab. 2). Thus, the value proposition is more important than a business plan (see Ex71 in Tab. 2).

To formulate the value proposition and test it virtually, a start-up must identify, understand, and reach out to its target segments (see Ex30 in Tab. 2). According to Ex35 and Ex70, the value proposition is another proof-of-concept milestone: If the start-up can formulate the

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benefit but for now cannot monetize the product with this value proposition, a start-up could also become successful. For Ex71, the value proposition is the starting point of a start-up's value chain (Tab. 2).

One challenge for start-ups regarding value propositions is that although it can be tested as a linguistic variable, it is not possible to evaluate whether it can also be monetized. In contrast, it is easier for an already established company to, for example, calculate the market launch risk due to previous experience with similar or comparable products. After the market launch, a start-up only knows whether customers understand its product or services and whether they are also willing to pay an appropriate price premium above the product costs. In addition, customers may also perceive an individual benefit that may differ from the start-up's value proposition but one that might, ideally, increase the start-up's chances of becoming successful. This means that a start-up must find and realize a value proposition and successfully convey this proposition to customers so that they will buy the start-up's products and services in a significant volume.

The revenue model is a subcomponent of the business model. It describes the instruments and sources with which revenues are generated for the target consumer of the product offered. Accordingly, the revenue model can be viewed as a business operationalization of the value proposition of the start-up's invention. The revenue model transforms the invention into an innovation. Terminologically, innovation is the added value of the invention recognized by the market. Several experts interviewed address the close connection between value proposition and revenue model (see Ex22, Ex23, Ex43, Ex47, Ex63, and Ex75 in Tab. 3). As the value proposition, the revenue model must be straightforward and allow the start-up to generate revenue as quickly as possible (see Ex1, Ex7, Ex26, and Ex44 in Tab. 3). After all, a start-up can survive only a few mistakes, such as an inaccurate target group approach, an unclear value proposition, or exaggerated product development (see Ex26 and Ex29 in Tab. 3).

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**Table 3. Selection of Statements on Revenue Model Relevance**

<i>ID</i>	<i>Statement</i>
Ex7	“For digital-only companies at a very early stage, revenue streams are very important. Financial planning is then derived from the revenue model.”
Ex8	“At the heart of it is the question: can I monetize my USP? It needs a really good value proposition and then a plan for making revenue from it. That’s critical.”
Ex12	“The revenue stream model is now one level deeper. Not just ‘who is my customer?’ but ‘will they spend money on my idea?’. Industry experience results in robust data and therefore realistic revenue planning.”
Ex22	“There are already 1,000 examples that sell well, where the value proposition is low, but there's still a model behind it that makes money.”
Ex23	“In many cases, the revenue streams come first when you really have delivered a value proposition.”
Ex26	“Many teams are strong in their technical component. However, the benefits and sales channels are sometimes disregarded. You must address a mass market at some point, which means the revenue stream model, synonymous with sales, is always a very important component.”
Ex29	“A start-up cannot cope with any or only a few mistakes. There’s no such thing as an ‘iterative scaling-up approach.’ I have to approach the right people so that I also generate sales as early as possible. Without revenue, the project dies.”
Ex39	“A profitable business definitely needs a good idea of how I can make money. But, of course, just the business idea alone is of no use.”
Ex43	“I have to be able to commercialize my idea. Especially with engineers, the problem is often that they can't get their idea across in a commercially attractive way.”
Ex44	“Do I have a plausible business model? I must identify what I want to earn my money with plausibly. Someone must be able to explain in three minutes what the core of the idea is. The core must be simple and ingenious.” “Making sales is the be-all and end-all. And that, in turn, then defines my product.”
Ex47	“A convincing value proposition and the revenue streams are, after all, somehow very closely intertwined.”
Ex58	“Flexibility is also very important in terms of revenue streams. What's the saying? I have to ‘pivot’ regularly and turn everything upside down when needed.”
Ex59	“The revenue model is important because you have to generate revenue yourself as it’s always difficult to find someone who will finance you through five to six years. So that it’s very important to have a good revenue model, to be on your own feet as soon as possible.”
Ex64	“A revenue model is much more important than any other plan.”
Ex65	“And that solution to the customer problem has to be monetizable. The keyword is ‘revenue streams.’”
Ex69	“Even if there's no profit generated for a long time, at least you should have revenues.”
Ex72	“The revenue model shows whether the market has actually been understood. Again, economizing the value proposition is key.”

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<i>ID</i>	<i>Statement</i>
Ex75	“Even the revenue streams won't flow if you don't have compelling value.” “Customer value is the nucleus of the foundation.”

The simplicity of the revenue model about a simple value proposition is the lever for rapid monetization of the idea because time is the critical scarcity factor for a start-up. However, in order not to jeopardize funding due to limited financial resources (see Ex59 in Tab. 3), the revenue model, like the value proposition, must have certain flexibility (or plasticity) (see Ex58 in Tab. 3). Irrespective of this, a functioning revenue model proves to both the founding team and the investors that the invention is indeed an innovation. Thus, monetization of the value proposition can already succeed shortly (see Ex72 in Tab. 3).

Estimates range between three to six years regarding the monetization of the value proposition through the revenue model (see Ex59 in Tab. 3 and Ex11 in Tab. 4). In this context, the revenue model should be reviewed regularly (see Ex58 in Tab. 3) and should not be aimed at market segments that are too narrow. Instead, the market segments should be scalable (see Ex26 in Tab. 3). In addition, a team with appropriate product management experience would be necessary for operationalization (see Ex70 in Tab. 4).

**Table 4. Selection of Statements on Other Business Model Components**

<b>ID</b>	<b>Theoretical Code</b>	<b>Statement</b>
Ex11	USP	“Domestically, we have a maximum lead of three years.”
Ex17	MSC	“This solution must be tailored to different people, so market segmentation is particularly important. The value proposition here goes hand in hand with market segmentation. Which customer am I targeting and how?”
Ex40	MSC	“I think a lot of good products are unfortunately poorly marketed. So if I can't position a good product properly in the market, that's very unfortunate.”
Ex52	MSC	“Even if there was no market to begin with, I can build a good value proposition.”
Ex70	AKR	“Depending on how quickly I can attract people with scaling experience to my team, that's the key resource par excellence and also the key to success.”

*Note:* USP = Unique selling proposition; AKR = Availability of key resources; MSC = Plausible market segmentation concept.

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In the last part of the interview, the researcher asked the experts about the relevance to the success of the entire group of characteristics per research perspective (actor, context, and business model). The highest relevance for success is attributed to personality characteristics (Schumacher, 2022a), followed by the business model components. However, according to the experts interviewed, the entrepreneurial context contributes the least to entrepreneurial success (Schumacher, 2022b).

### **Conclusions and Outlook**

In summary, the following findings and implications can be derived from the two main characteristics in the group of business model components, namely a convincing value proposition and a plausible revenue model: German VC investors consider a convincing value proposition to be the most relevant component for the success of digital start-ups. Value propositions must be defined in a simple and target group-specific manner and must be able to convince the market of a product that is not yet well-known. Furthermore, value propositions are the core component of the business model on which the revenue model must be based.

Value propositions are never fully formulated but must be modifiable at any time in order to remain agile in changing target segments or markets. In addition, value propositions also provide a point of orientation for product development or the transformation of an idea or invention into an innovation. This orientation enables start-ups to differentiate their products or services from comparable products or services.

The second characteristic is a plausible revenue stream model, which German VC investors consider to be also relevant for the success of digital start-ups. Plausible revenue models operationalize the value proposition. They are also to be kept as flexible and straightforward as possible and not too target group-specific but more broadly defined. In such a way, ideally, it is possible to generate revenues immediately after the product launch. Plausible revenue models are the proof-of-concept for the relevance of the business idea, the products derived from it, and their value proposition. In addition, even mediocre business ideas and USPs can be monetized with a plausible revenue model.

For both factors, some experts cited time (see Ex11 in Tab. 4 and Ex59 in Tab. 3) and scalability (see Ex26 in Tab. 3 and Ex70 in Tab. 4) as the main reasons for the simplicity and flexibility

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of the revenue model and value proposition. However, both reasons point to a significant problem for start-ups: Time (time-to-market) is the critical scarcity factor. As noted earlier, Ex11 and Ex59 assume that the start-up takes three to six years to realize the first-mover advantage and secure possible follow-up financing from investors or strengthen internal financing capability through quickly generated revenue (see Tab. 3 and Tab. 4).

This exploratory qualitative study provides an initial proposal for entrepreneurship research on meso-level entrepreneurial success that may have implications for future resources for entrepreneurship and firm performance. This study contributes to the literature in two ways: First, this study adopts a multi-theoretical view by including three main research perspectives representing the meso-, micro-, and macro-level of entrepreneurship activity. Second, the exploration of expert assessments of success characteristics instead of interviewing entrepreneurs of digital start-ups and their attitudes on success factors allows for an external view of start-up entrepreneurship. Thus, experts are not only observers but also practitioners who take financial risks by analyzing the founder, business models, and the start-up context.

It is important to remember that the approach taken here influences the sample size. For this reason, the results of this qualitative analysis can be regarded as the basis for statistical analysis of quantitative data in the context of a questionnaire-based survey with higher case numbers. Instead, the study confirms some theoretical assumptions about the importance of the components value proposition and revenue stream model and the entire group of business model components. However, these findings allow VC investors to conclude the focus of their implicit or explicit factor investment models. Furthermore, start-up entrepreneurs may find practical value in developing a value proposition and revenue stream model.

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**Abstract**

This study examines the perspective of German venture investors on the success factors of digital start-ups at the micro- (entrepreneurial personality), macro- (contextual factors), and meso- (business model) levels and derives an integrated, evidence-based working model of entrepreneurial success. This study follows a mixed-methods design, using theory-driven semi-structured expert interviews to collect quantitative and qualitative data. Triangulation of the data ensures that the results are unbiased. The study shows that the business model and single components of the business model are the least relevant success factors of digital start-ups from the perspective of German venture capitalists. Moreover, this study has some evidence of the relevance of venture capital availability as a contextual factor. Instead, the results show, in line with the literature, that personality factors in general and team leadership skills, in particular, seem to have a significant impact on the success of digital start-ups from the perspective of German venture capitalists.

**Keywords**

digital entrepreneurship, digital start-up, integrated perspective, success factors, venture capital, venture investors

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## **Introduction**

Politics, media, and the public have increased attention to start-ups and innovative entrepreneurship within the last decade (Hahn, 2014). Successful entrepreneurship and its effects, e.g., a growing number of start-ups, are the prerequisites for intelligent, sustainable, and innovative economic growth (OECD, 2010). Although public debates and academic research frequently use the term start-up, there is no standard definition (Breschi et al., 2018). Cantner et al. (2021, p. 2) define the main activity as the “exploitation of previously non-commercialized knowledge and ideas.” Consequently, a digital start-up could be an internet-enabled start-up or a start-up that builds its business model on information-processing technologies to exploit non-commercialized ideas and knowledge. Digital start-ups thus prefer to use intangible assets and generally provide non-material products (Elia et al., 2020; Kollmann, 2006; Kollmann, 2016; Richter et al., 2016; Schallmo & Rusnjak, 2017; Skala, 2019). This lack of a commonly accepted definition shows how young this field of research still is.

Explaining start-up success is mainly based on the results of classical entrepreneurship research focusing on micro- level factors, i.e., research that assumes that personality factors are the main entrepreneurial success factors (Richter et al., 2016). However, in recent years, research on contextual factors has increased and provided evidence for the relevance of contextual factors (Alvedalen & Boschma, 2017; Cavallo et al., 2019; Elia et al., 2020; Malecki, 2018; Richter & Schildhauer, 2016; Schwarzkopf, 2016; Schweer & Sahl, 2017; Sullivan & Ford, 2014). These two perspectives, then, usually consider only one dimension. However, the interplay of personal, contextual, and business factors characterizes entrepreneurial performance, which must be viewed as a multiphase process (Shepherd et al., 2019). In their comprehensive quantitative literature review, Shepherd et al. (2019) conclude that although the number of entrepreneurship studies has increased over the past decade, the focus and the findings generally confirm the relevance of micro-level factors to success.

Recent research suggests that venture capital (VC) investment managers use multidimensional valuation approaches to evaluate start-ups with potential success. A systematic literature review by Köhn (2017), considering 58 articles on start-up valuation determinants, finds that business model characteristics, founder and team characteristics, and financial information are the most important information collected and evaluated in the assessment process. Examining German VC investors, Sievers et al. (2012) also show that non-financial information and financial

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information are weighted equally meaningful in the assessment process. Based on these findings, VC investors can be considered highly informed experts who use multidimensional models to assess entrepreneurial success.

This study is based on original empirical research and addresses two central research questions (RQs): First, which predictors from the three different perspectives (micro, macro, and meso) do German VC investors believe have the most influence on their investment success and thus on the success of a digital start-up? Second, which entire group of factors is most relevant in explaining investment success from the perspective of German VC investors and thus the success of a digital start-up? First, this article highlights the present discussion of different research approaches before it presents the results of the empirical research, intending to answer the two research questions.

### **Theoretical Perspectives**

The traditional entrepreneur concept goes back to Schumpeter, who defines the entrepreneurial actor as a person who is running a business alone or together with other co-entrepreneurs (Meyer, 2020, pp. 24-25). The risk of losing his or her capital characterizes the entrepreneur also as an equity investor. In this context, independent action, organizational, management and planning authority, and risk-taking are considered classic characteristics of entrepreneurship (Schaller, 2001, pp. 6-9). Fueglistaller et al. (2008, p. 1) go one step further and highlight the identification, evaluation, and exploitation of business opportunities. This understanding aligns with the Schumpeterian view of the entrepreneur and can also be called a major approach in classic entrepreneurship research based on the actors' perspective (Meyer, 2020, pp. 24-26).

The modern theory of the entrepreneur emerged at the initiative of American VC investors looking for success-related personality traits of entrepreneurs (Eckardt, 2015, p. 12; Meyer, 2020, pp. 24-29). With this business psychological approach, they hoped to explain the difference between entrepreneurs and managers (Volkman et al., 2010, p. 9). Furthermore, these models explain entrepreneurial success in behavioral dispositions, particularly the continuous search for business opportunities. Consequently, the personality characteristics of the founding team or the entrepreneur determine the company and its performance (Andersson, 2007, p. 129; Najmaei & Sadeghinejad, 2019, p. 103). However, Rauch and Frese (2008) and

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McMullen and Shepherd (2006) state that such a monistic approach is inappropriate to explain and promote entrepreneurial success without taking the business environment into account.

Overall, empirical research at the micro-level is becoming increasingly heterogeneous, both methods and perspectives (Audretsch, 2012, p. 755; Zahra et al., 2014, p. 487, 495). Far from being limited to the actor (Audretsch, 2012, pp. 761-762), actor-centered research examines entrepreneurial personality characteristics and human capital in its interaction with the environment based on this important distinction between manager and entrepreneur (Unger et al., 2011). For example, the Giessen-Amsterdam Model of Entrepreneurial Success, developed by a group of psychologists and economists of the Universities of Giessen and Amsterdam, explores the psychological conditions for the success of entrepreneurial activity. This model identifies four groups of factors (personality characteristics, human capital, entrepreneurial behavior and activities, and the firm's environment) that interact and assume that actions, cognitions, and processes can be modified to derive possible intervention recommendations (Rauch & Frese, 2008). The purpose is to systematically develop psychological conditions for success by creating appropriate supportive contextual factors (Rauch & Frese, 2000, pp. 101-104).

The number of publications that emphasize the relevance of personality characteristics for entrepreneurial success is significantly higher than those that consider contextual factors relevant (Richter et al., 2016; Shepherd et al., 2019). Some studies that examine the success relevance of single factor groups or several sub-factors of the Isenberg Entrepreneurial Ecosystem Model (Isenberg, 2014) find some evidence of, e.g., the higher availability of human capital in ecosystems (Jain & Ali, 2013; Richter et al., 2016; Schweer & Sahl, 2017; Unger et al., 2011). Other studies show that developed domestic markets with consumers who have a certain affinity for innovation can contribute to the success of a start-up (Richter et al., 2016). So does the presence of financing markets that provide a larger volume of venture capital (VC) and a variety of alternative financing instruments (Angerer et al., 2017; Lee et al., 2015; Richter et al., 2016; Schwarzkopf, 2016).

Furthermore, network effects such as knowledge spillovers (Delgado et al., 2014; Elia et al., 2020; Schweer & Sahl, 2017; Sullivan & Ford, 2014) or entrepreneurial support services infrastructure such as business accelerator programs, start-up consultants, and other institutions

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providing specialized start-up services (Richter et al., 2016) are seen as additional benefits of an ecosystem. Furthermore, institutionalized entrepreneurial communities (Acs et al., 2014) and the presence of non-governmental institutions (NGOs) such as university-affiliated associations or entrepreneurial training programs (Schwarzkopf, 2016) represent additional ecosystem benefits. The same is true for a transparent bureaucracy and low taxes (Richter & Schildhauer, 2016; Richter et al., 2016; Schwarzkopf, 2016) and a high-quality information and communication technology (ICT) infrastructure, especially with a view to the emerging of digital start-ups (Schweer & Sahl, 2017).

It is important to distinguish between two main types of entrepreneurial ecosystems: naturally emerging ecosystems and artificial ecosystems. The former develop without government intervention, and evolutionary dynamics resulting from the interaction of different individuals drive them (Auerswald & Dani, 2017; Belitski & Godley, 2020; Brown & Mason, 2017; Colombo et al., 2017; Isenberg, 2014). In contrast, artificial ecosystems also emerge spontaneously but are supported and regulated by policymakers or governmental organizations providing resources and a certain network (ecosystem) management (Colombo et al., 2017; Spigel, 2016; Stam & Spigel, 2016). The conclusion remains that research on entrepreneurial ecosystems has not yet developed a consistent perspective on interaction and is a fairly recent approach in the literature (Cavallo et al., 2019). Moreover, the relevance of artificial ecosystems to success is controversial (Kroiß, 2003).

Both the micro- and the macro-perspective consider the company only as a base or kind of a black box, and the classical approaches to business model analysis choose either a process model approach, a revenue model approach, or core competence concepts (Paul & Wollny, 2011, p. 66). Only in recent years have researchers begun to investigate the influence of the business model as a third perspective (Meyer, 2020, p. 14), finding that there is also no consistent and unambiguous definition of the business model either in professional management discourse or in the literature. Especially against the emerging digital economy backdrop, business model design and innovation have increased attention in practice and research (Schallmo, 2017, p. 2).

Although there is not yet a generally accepted system for describing business models, researchers and practitioners regularly use the business model approach of Osterwalder and

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Pigneur (2010) to examine and describe start-ups or growth companies (Schallmo, 2013, p. vii). Empirical research on the effects of business models on entrepreneurial success also provides relatively less clear evidence. For example, the systematic literature review by Sohl et al. (2020) shows that the business model explains only 5% of the ROA variance for established companies in mature markets. For start-ups, empirical research provides evidence for a positive impact of continuous business model development on start-up success, while adherence to the business model leads to start-up failure (Balboni et al., 2019).

### **Research Design**

The present study draws on original research using a multi-perspective approach to examine the three dimensions of entrepreneurship research from the perspective of German VC investment managers in an explorative manner. Qualitative research findings have already been published (Schumacher, 2022). First, the researcher identifies the experts using the German Federal Association of the Digital Economy (BVDW) member list, which also lists start-up investors focusing on digital ventures. Then, based on this list of 725 potential experts and an initial mailing by e-mail or messaging via the professional online business network LinkedIn, 77 experts were recruited and interviewed mainly face-to-face, over the phone, or in videoconferences between August 2018 and February 2019.

### *Data Collection*

The research explores the relative importance of and interaction between specific factor groups and single factors across dimensions regarding digital entrepreneurship (e-entrepreneurship) from a German venture investors' perspective. To this end, one reference model per each central research perspective was operationalized and used as a basis for data collection through semi-structured expert interviews. First, the Giessen-Amsterdam model as a personality factor model (Rauch & Frese, 2000; Rauch & Frese, 2008). Second, the Isenberg model is a reference model for contextual factors. Third, the Osterwalder-Pigneur business model approach is a model for business model components (Osterwalder & Pigneur, 2010).

The analysis resulted in a data model that includes the experts' weighting of 21 single factors and 3 factor groups related to the economic performance of digital start-ups (see Table 1).

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**Table 1. Factor Groups Operationalized in the Questionnaire**

<i>Factor Group</i>	<i>Single Factor</i>
Personality	Education
Characteristics of the Entrepreneur (Micro-Level Factors)	Professional & Industry Experience Motivation & Entrepreneurial Energy Product-Specific Know-How Organizational Skills Team Leadership Skills Strategic Thinking Willingness to Learn
Contextual Factors (Macro-Level Factors)	Finance: Availability of Venture or Seed Capital Policy: Support from the political sector such as tax breaks, Regulatory Relief, Access to Public Institutions (e.g., in research and others.) Culture: Entrepreneurial Culture (such as social respect for entrepreneurship, enthusiasm for innovation and experimentation, and others) Business Services: Availability of Start-up-Specific Consulting Services and Infrastructure (e.g., tax and management consultants, infrastructures such as broadband internet, start-up clusters, and others) Human Capital: Availability of Well-Trained Employees Markets: Innovation-Friendly Domestic Market (receptive to innovative products or large enough for start-ups to grow sufficiently before having to risk internationalization)
Business Model Components (Meso-Level Factors)	Availability of Strategic Suppliers or Key Partners Availability of Key Resources, i.e., resources that are central to the business idea/business model Convincing Value Proposition (of the service/product/offer) Plausible Market Segmentation (for structuring Marketing and Sales Channel Strategies) Detailed and Plausible Calculation of Sales, Costs, and Profit (profit and financial planning) Detailed and Plausible Business Development and Implementation Planning Plausible Revenue Stream Model, i.e., a model or idea of what benefits the customer will pay for and how much, and what other revenue streams can be developed in the near future with what revenue contributions

*Note.* Giessen-Amsterdam Model of Entrepreneurial Success (Rauch & Frese, 2008, p. 11), the Isenberg Entrepreneurial Ecosystem Model (Isenberg, 2014), and the business model approach of Osterwalder and Pigneur (2010, p. 44).

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Regarding RQ1, the researcher first asked the experts about the success relevance of every factor per dimension. For this purpose, the researcher provided the experts with a list of operationalized factors and additional explanations on a handout. Second, the researcher asked the experts to select a maximum of three factors per group that they believe has the most significant influence on a digital start-up's success and weigh them so that the sum added up to 100%. In the final step of the first part, the researcher asked the experts to explain their weighting in greater detail. Then, in the second part of the interview, the researcher collected the data to answer RQ2, asking about the three dimensions of entrepreneurial success relevance. So, the experts had to weigh the entire factor group per dimension in this part of the interview. Therefore, the sum of the weightings should again add up to 100%.

In addition, the researcher collected data on the professional experience of the experts interviewed, the job description, and the volume of assets under management. The performance-based data also collected, such as the return on investment (ROI) achieved (3-year average) and the estimated success rate in evaluating start-up success (see Table 2), serve as dependent variables in the subsequent regression analysis. Finally, the filter question asked at the beginning of the interview ensures that all experts interviewed are active professional investment managers making decisions about funding digital start-ups.

In preparing the quantitative data, the researcher multiplied the factor weights by those of each dimension to obtain the weighted relevance of all factors. Finally, descriptive statistics presented these quantitative data (see Table 3). The experts' detailed reasons for their ratings of the factors and the factor groups form the qualitative data obtained. Accordingly, the interview is structured based on the previously collected quantitative data and does not focus on the totality of all factors when collecting the qualitative data. This part of the questionnaire is, thus, equivalent to a guided interview.

A total of 731 statements were collected in this way and categorized in a three-stage process according to the qualitative content analysis method of Mayring (2010). After the transcripts were divided into coding units (segments) in the first step, test coding for the inductive development of subcategories took place in the second step. Finally, after the primary coding was carried out in the third step, the segments were assigned to the theory-based category system (deductive).

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*Sample Description*

Table 2 provides an overview of the characteristics of the interviewed experts and shows that the selected sample consists of VC investors who are experts in digital start-ups. Not only do the experts interviewed have considerable professional experience in investing and financing in the field of digital start-ups (the mean value is seven years, the median five years), they also manage assets consisting of shares, bonds, and other financial investments, the volume of which ranges from EUR 40,000 to EUR 1 billion.

It is important to note that these experts continue to work with the start-ups after their investment, possibly reinvesting millions in the following years. They see whether their initial assessment of the economic success has proven correct. The mean and median of the self-assessed success rate lie in a narrow range (mean = 56%, median = 60%), indicating a normal distribution. Thus, there is no evidence of partial overconfidence bias in the group of selected experts.

**Table 2. Descriptive statistics**

<i>Variable</i>	<i>N (Valid)</i>	<i>Mean</i>	<i>Median</i>	<i>Range</i>	<i>Min.</i>	<i>Max.</i>	<i>Sum</i>
Mgmt. Experience (Years)	77	7.03	5.00	19.50	0.50	20.00	542
AuM (TEUR)	77	53,401	10,000	999,960	40	1,000,000	4,111,865
Start-up Experience (Years)	77	13.83	15.00	34.50	0.50	35.00	1,065
Gender (female = 0)	77	.92	1.00	1.00	.00	1.00	71
Investment Volume (TEUR)	77	10,238	2,000	100,000	0	100,000	788,292
Investment Success Ratio	77	.56	.60	1	0	1	
ROI realized	77	.36	.25	2.9	.10	3	
ROI expected	77	.24	.20	1	0	1	

*Note.* AuM = Asset under Management.

**Data Analysis**

Of the three groups of factors (1) personality characteristics of the entrepreneur (micro-level factors), (2) contextual factors (macro-level factors), and (3) components of the business model (meso-level factors), the experts interviewed rated the group of personality factors as most relevant to success, while the group of contextual factors was rated least relevant (see Table 3).

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**Table 3. Factor group weightings and single factor weightings of the experts (N = 77)**

<i>Factor Group</i>	<i>N (Valid)</i>	<i>Mean</i>	<i>Median</i>	<i>Min.</i>	<i>Max.</i>
Personality Factors	77	49%	50%	30%	95%
Contextual Factors	77	21%	20%	2%	50%
Business Model Components	77	30%	30%	3%	50%
<i>Single Factor</i>	<i>N (Valid)</i>	<i>Mean</i>	<i>Median</i>	<i>Min.</i>	<i>Max.</i>
Education	77	0%	0%	0%	13%
Professional & Industry Experience	77	4%	0%	0%	26%
Motivation & Entrepreneurial Energy	77	4%	0%	0%	27%
Product-Specific Know-How	77	15%	15%	0%	57%
Organizational Skills	77	2%	0%	0%	17%
Team Leadership Skills	77	4%	0%	0%	21%
Strategic Thinking	77	4%	0%	0%	36%
Willingness to Learn	77	7%	8%	0%	23%
Other Personality Characteristics	77	8%	6%	0%	30%
Availability of Venture or Seed Capital	77	7%	6%	0%	30%
Support from the Political Sector	77	0%	0%	0%	6%
Entrepreneurial Culture	77	3%	0%	0%	10%
Availability of Consulting Services and Infrastructure	77	2%	0%	0%	13%
Availability of Well-Trained Employees	77	6%	6%	0%	16%
Innovation-Friendly Domestic Market	77	3%	0%	0%	18%
Other Contextual Factors	77	1%	0%	0%	10%
Availability of Strategic Suppliers or Key Partners	77	2%	0%	0%	17%
Availability of Key Resources	77	4%	0%	0%	18%
Convincing Value Proposition	77	10%	10%	0%	30%
Plausible Market Segmentation	77	3%	0%	0%	25%
Detailed and Plausible Financial Planning	77	1%	0%	0%	13%
Detailed and Plausible Implementation Planning	77	2%	0%	0%	18%
Plausible Revenue Stream Model	77	6%	6%	0%	30%
Other Business Model Factors	77	2%	0%	0%	14%



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Among the weighted single factors, the Product-Specific Know-How and the Convincing Value Proposition show the highest mean values (see Table 3). However, this does not imply that these factors, in particular, can explain the success of an investment decision in a digital start-up as indicated by the Investment Success Rate and the Realized ROI by VC investors. Therefore, an explorative regression analysis is performed in four steps:

1. Regression analysis of the effect of all independent variables on the Realized ROI;
2. Regression analysis of the effect of all independent variables on the Estimated Investment Success Rate of the interviewee;
3. Regression analysis of the effect of the factor weightings for each factor group and the control variables (Management Experience, Assets under Management, Start-up Experience, Gender, and Investment Volume) on the Realized ROI;
4. Regression analysis of the effect of the factor weightings for each factor group and the control variables on the Estimated Investment Success Rate.

The regression on the Realized ROI in the first step yields three models (see Table 4). The final model (Model 3) includes three variables that are within the defined tolerance range (TOL) > 0.8. The lowest TOL among the included variables (single factors and factor groups) has maximum collinearity of 12%, so this model can be considered high quality. Furthermore, the three predictors in Model 3 (single factor Team Leadership Skills, factor group Personality Factors, single factor Venture Capital Availability) explain 36% of the variance in Realized ROI. Thus, these three independent variables have relatively high explanatory power regarding their influence on realized ROI.

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**Table 4. Realized ROI regression models**

<i>Model</i>	<i>Adj. R Square</i>	<i>R Square Change</i>	<i>ANOVA Sig.</i>	
1	.194	.205	.000	
2	.305	.118	.000	
3	.361	.063	.000	

<i>Model</i>		<i>Beta</i>	<i>Sig.</i>	<i>Tol.</i>
1	(Constant)		.000	
	Team Leadership Skills	.453	.000	1,000
2	(Constant)		.066	
	Team Leadership Skills	.382	.000	.960
	Personality Factors	.350	.001	.960
3	(Constant)		.003	
	Team Leadership Skills	.382	.000	.960
	Personality Factors	.427	.000	.880
	Venture Capital Availability	.263	.008	.914

*Note.* Dependent Variable: Realized ROI.

Moreover, the standardized coefficients (beta weights) of all three predictors are positive, indicating that the VC investor's higher weighting of these factors leads to a higher Realized ROI. Looking at the significance levels (Sig.) of the three predictors, each variable within Model 3 proves significant with a value Sig. < 0.05 as significant. These results imply further evidence to support the assumption made earlier.

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**Table 5. Estimated Success Rate Regression Models**

<i>Model</i>	<i>Adj. R Square</i>	<i>R Square Change</i>	<i>ANOVA Sig.</i>		
1	.051	.064	.000		
2	.099	.059	.000		

<i>Model</i>		<i>Beta</i>	<i>Sig.</i>	<i>Tol.</i>
1	(Constant)		.000	
	Organizational Skills	.253	.027	1.000
2	(Constant)		.000	
	Organizational Skills	.246	.027	.999
	Professional & Industry Experience	.243	.028	.999

*Note.* Dependent Variable: Estimated Investment Success Rate.

Regression on the Estimated Success Rate as the second dependent variable yields two models in the second step, with both models again including variables within the defined range of TOL > 0.8 (see Table 5). The particularly low collinearity of the variables included (single factor Organizational Skills and single factor Professional & Industry experience) (see Table 5) characterizes Model 2 as extremely high quality. However, the explanatory power of the two predictors included in Model 2 amounts to a total of just under 10% of the Estimated Investment Success Rate variance.

In summary, both final models (the final Model on the Realized ROI and the final Model on the Estimated Investment Success Rate) include only personality factors, except for Venture Capital Availability in the first model. However, the contribution to the explanatory power of this predictor within this final Model 3, just under 7%, is minimal. Consequently, success in the investment decisions of VC investors can be explained primarily by a higher estimation of personality characteristics.

However, the regression analyses conducted in the third and fourth steps on the Realized ROI and the Estimated Investment Success Rate, which included only factor group weights as independent variables and the control variables mentioned above, did not yield any regression models. Here, all variables entered were excluded due to insignificance. This fact is further evidence that only a few personality factors, rather than the general higher weighting of the

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entire group of personality factors, might determine the entrepreneurial success of digital start-ups as measured by the investment success of VC managers.

Based on the results presented earlier, the qualitative data analysis that provides interviewees' rationales for their factor weightings focuses on the two predictors from the final Model 3 to explain the variance in Realized ROI. When making investment decisions, the consideration of Team Leadership Skills, an intangible resource, and the Availability of Venture Capital, a tangible resource, seem to be the most important success factors that may lead to a higher ROI for VC investors and consequently to start-up success. The following qualitative data explain this finding.

As the interviewees pointed out, digital start-ups need teams with various skills that leaders must integrate to succeed (see Table 6).

**Table 6. Selected statements on team leadership skills**

<i>Expert</i>	<i>Statement</i>
Ex3	“The tinkerer who does his thing in a quiet room is a dying breed. I need a team for start-up success.”
Ex31	“Start-up success always depends on the team.”
Ex37	“One thing to say about team leadership: It's all about people. [...] The founder must not be too afraid to build a team around him that is stronger than he is.”
Ex38	“Team leadership skills are extremely important because that's what makes all the development and growth opportunities possible.”
Ex39	“I can work around unrest and difficulties in the team if I'm a good team leader. And in start-up teams, conflicts are 'the real normal'.”
Ex40	“If you can't build a team, you won't be able to scale. Building and leading a team is more of strategic skill.”
Ex44	“If you can lead a team, you can get the other areas in. Education and industry and stuff like that.”
Ex57	“All the individual team members must complement each other - and these must then be guided toward a goal.”
Ex65	“Team leadership skills are particularly important so that I can also lead and organize my heterogeneous team well.”
Ex70	“Team leadership skills are also especially important. Finding a good team and keeping it is important.”
Ex70	“In the start-up phase, you can't buy skills on the market for cost reasons; you have to get them into the team and keep them.”

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However, VC itself does not lead to success, as Expert 11 notes (see table 7). Moreover, several experts find that the availability of VC is generally necessary for the success of start-ups but not sufficient. For example, Expert 6 and other experts state that VC first becomes relevant when transforming the invention into innovation and scaling the business model in the growth phase. From the process perspective, it is reasonable to conclude that a successful team could be the basis for healthy upscaling and growth, thus the need for VC.

**Table 7. Selected statements on venture capital availability**

<i>Expert</i>	<i>Statement</i>
Ex1	"[...] many topics [...] which I can push ahead with venture capital speed."
Ex6	"For the very, very early phase, the availability of venture capital is therefore not so important. Later, however, VC becomes increasingly important as the company scales up."
Ex9	"The available capital is particularly important for a company's growth."
Ex11	"In the last 25 years, I have not heard of a single case where funding has led to success."
Ex15	"And the VC and PE funds are only important in later stages of development."
Ex16	"When I have money, I do my thing. That is still the most important thing to grow."
Ex18	"Money is, in fact, necessary to get something going quickly."
Ex21	"Good financial resources are always important. If you want to scale up, that is very important. Some people built a good start-up without VC, but that is not the rule. To be able to start quickly, VC is important."
Ex26	"VC is important, particularly for scaling digital business models."
Ex36	"Without capital, there is no scaling. Many founders underestimate this. The iteration takes at least 3 to 5 months, and many underestimate that."
Ex52	"A VC investor is, in any case, a good indicator that the idea is also economically successful."
Ex67	"Later, you need growth capital to scale. However, at the very beginning, that doesn't matter for digital companies."

### Discussion and Key Findings

Based on an analysis of the quantitative assessments of German VC investors, this study suggests that single meso-level factors and entire groups of factors (micro-, macro-, and meso-levels) seem to be the least relevant for the success of digital start-ups. Moreover, there is only some evidence of the relevance of single contextual factors. Perhaps not surprisingly, interviewees weigh the Availability of Venture Capital as a success factor, especially in the later stages of the growth process. In particular, the qualitative data analysis shows that during the start-up process, the diversity and complementarity of a founding team in terms of creativity

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and skills is a prerequisite for later success. The importance of capital injections emerges only at later stages to help the company grow and scale to a greater extent than without external financing.

Thus, this multi-perspective study supports the findings of the literature reviews discussed in Section 2. As already shown by Richter et al. (2016), Shepherd et al. (2019), Andersson (2007), and Najmaei and Sadeghinejad (2019), micro-level factors seem to be most important for the success of start-ups. This study provides further evidence for this assumption by showing that the investment success of the experts interviewed, as measured by Realized ROI, is related to a high rating of personality characteristics as potential success factors.

The question, however, is whether VC investors correctly assess the impact of personality factors. From a theoretical perspective, the concept of *taste for assets* may be helpful to explain the issue. For example, taste for assets is used in the behavioral finance literature to describe irrational stock-picking decisions resulting in *home bias* (preferring domestic stocks over foreign stock or preferring stocks from a specific industry) or unsystematic risks, e.g., cluster risk.

Against this backdrop, the contradiction between the results of multiple regression and descriptive statistics could indicate investor bias. In addition, the comparatively high weighting of factors such as Product-Specific Know-How (micro-level factor) or Convincing Value Proposition (meso-level factor) by the surveyed active VC investors may indicate a cognitive bias. However, it is important to note that the regression model's low explanatory power does not provide more than a possible first indication of this phenomenon. More data and a different research design may be appropriate for an in-depth examination of this issue in follow-up studies. The empirical evidence presented here only suggests that there seems to be some cognitive bias in VC investors' assessment of entrepreneurial success factors and their actual relevance for investment success.

### **Limitations and Outlook**

This mixed-methods exploratory has at least three strengths that affect researchers and practitioners. First, this study uses a multi-theoretical perspective by including the micro-, macro-, and meso-levels as the three main research perspectives of entrepreneurship. In this sense, it provides a more comprehensive perspective on entrepreneurial activity than previous

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studies. Second, this research provides an important external perspective on digital entrepreneurship in the start-up scene. The experts interviewed are not only observers who analyze founders, business models, and the context of start-ups but also practitioners who take financial risks. Third, its triangulation of qualitative and quantitative data allows for developing an evidence-based working model of digital start-up success.

One limitation of this study is the size of its sample (77 interviews), which is pretty low. Nevertheless, although the approach taken here is more limited than purely quantitative studies of the success relevance of single factors and entire factor groups, this study can at least approximate the results of a questionnaire-based survey with a higher number of cases. Future studies could refine the results.

For example, future research could reduce the number of model components to a small set of presumably influential factors to meet all requirements for a theoretical model. Such a model could then be the starting point for future research on the success factors of e-entrepreneurship. For example, this study found no evidence of policy measures' relevance, yet policymakers seem eager to allocate resources. Thus, future research could also explore the importance of entrepreneurship policies. Therefore, it stands to reason that an examination of provided subsidies in terms of their effectiveness in promoting innovative e-entrepreneurship is recommendable. However, this study points to another contextual factor that may have relevance, especially for VC investors. Since the provision of VC becomes more important first in the growth phase, the interviewed experts should reconsider the importance of this contextual factor in their implicit or explicit factor investment model. Furthermore, start-up entrepreneurs may find practical value in developing diversity in the top management team. Thus, this study provides empirical evidence that it is indeed necessary to develop the ability to lead a diverse management team, especially before approaching VC investors.

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