Fulfilling the Process Promise: A Review and Agenda for New Venture Creation Process Research

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Abstract
We review new venture creation process research in leading journals over the past 30 years, applying a broad view of “process.” While we find a rich and varied literature with significant quantitative and qualitative growth, the review reveals considerable room for future contributions in this important area of entrepreneurship research. In an agenda building on review results, exemplary articles, and theory development advice from other sources, we discuss several types of such future contributions. We hope that our efforts can inspire emerging scholars, colleagues, research leaders, and institutional actors to contribute to a bright future for this core domain of entrepreneurship research.

Keywords
new venture creation, start-up, process, time and temporality, review

It is increasingly agreed that the phenomenon of new venture creation (NVC) should be a core focus in entrepreneurship research (Carlsson et al., 2013; Wiklund et al., 2011). There is also growing consensus that NVC is a process—the journey from nonexistence to existence of new economic activities—rather than an event (Baron & Markman, 2018; McMullen & Dimov, 2013; Shane, 2012; Vogel, 2017). But beyond declarations to that effect is the field of entrepreneurship making satisfactory progress in building insights into NVC as a process? Are we building shared understandings of what the NVC process entails? Developing shared, abstracted concepts and theories that can effectively capture NVC as a process? Generating cumulative evidence about processual aspects of NVC that can be effectively communicated to colleagues and practitioners by means of such abstracted concepts and theories? And regardless of how satisfactory the current state might be, how can we, as a field, do better in the future?

These are the questions we address in this article. To that end, we perform a systematic review to limit subjectivity and bias in our portrayal of past NVC process research (Rauch, 2019; Tranfield et al., 2003). We combine this with narrative reviewing because guidance for future

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research cannot be based solely on quantitative compilation of past work, but needs to emerge from qualitative synthesis, the exemplar of particular studies, and other sources’ general and process-centered insights into making scholarly contributions.

We focus our work on the NVC process understood as a new, independent venture’s journey from initiation to completion of its creation (Davidsson, 2016; McMullen & Dimov, 2013; Shane & Venkataraman, 2000). Further, we apply a broad understanding of “process” as including anything that at some depth describes, explains, or is explained by what happens during the NVC process. This means that we start from the assumption that researchers can and do add insights into the NVC process through many different approaches, and not just through adherence to the ideal of holistic understanding of individual processes, building “process theory” as opposed to “variance theory” (Langley, 1999; Mohr, 1982; Van de Ven, 1992) and conducting “small n” empirical research (cf. Langley, 2009, p. 411; McMullen & Dimov, 2013, p. 1505; Pettigrew, 1997, p. 342).

On the basis of the review and the advice of authorities on process research and theory development, we develop an agenda for future research that we hope can provide inspiration and guidance for theorizing and evidence accumulation pertaining to the NVC process. This agenda covers selection of topics and approaches, opportunities for theory elaboration and theory building, the need for programmatic NVC process research, and method challenges and opportunities pertaining to NVC process research.

We believe this stocktaking and agenda setting to be important contributions. Ours is the first comprehensive and systematic review of the NVC process literature. Earlier reviews (Moroz & Hindle, 2012; Steyaert, 2007) were restricted to theories and models for NVC process research and are becoming somewhat dated. Shepherd et al. (2019) provide a contemporary complement to our work by discussing different milestones of the NVC process, but overall “process” is peripheral in their review of dependent variables usage. Other authors share our ambition to encourage research and conceptual development pertaining to the NVC process (e.g., Dimov, 2020; McMullen & Dimov, 2013; Wood et al., 2019) but do not base their agenda setting on a systematic review. Further, our broader perspective on “process” helps us identify process research themes that may be relatively neglected within more conservative delineations of “process research.” Based on these unique features, we believe our work can inspire and enable research on the NVC process that enriches our own field while also making valuable contributions to the broader domain of economic and organizational research, which otherwise typically starts from assumptions of existing organizations.

In Research on the New Venture Creation Process: A Brief Retrospective section, we present a brief, narrative history of NVC process research. This is followed by our systematic review. Due to the topical diversity of the literature, our reporting focuses on what has and has not been done; where, when, and how? rather than cumulative evidence on particular issues. In the second half, we turn to our research agenda covering topics as stated above, before ending with a short Conclusion section.

### Research on the New Venture Creation Process: A Brief Retrospective

Table 1 lists articles illustrating key developments in NVC process research over time. This compilation shows that the process dimension was strongly emphasized in conceptual landmark articles already in the 1980s. However, it was not until the mid-1990s that longitudinal, empirical research appeared. This was also the time of the Minnesota innovation process studies (Van de Ven et al., 2000) and the commencement of the Panel Study of Entrepreneurial Dynamics (PSED; see Gartner et al., 2004; Reynolds & Curtin, 2010), which spawned multiple entries in Table 1.
Davidsson and Gruenhagen  

Table 1. Some Key Developments in New Venture Creation Process Research.

| Article and contribution                                                                 | Type | GS cit. |
|-------------------------------------------------------------------------------------------|------|---------|
| Gartner (1985, AMR). Framework highlighting process as a key dimension of venture creation (alongside environment, individual(s), and organization)³ | C    | 4439    |
| Low and MacMillan (1988, JOM). Research agenda highlighting process (time frame) as a key dimension (alongside purpose, theory, focus, and level)³ | C    | 3284    |
| Katz and Gartner (1988, AMR). Discuss intentionality, resources, boundaries, and exchange as early markers of the emerging venture’s separate identity³ | C    | 1804    |
| Bygrave and Hofer (1992, ETP). Define the entrepreneurial process as “all the functions, activities, and actions associated with the perceiving of opportunities and the creation of organizations to pursue them” | C    | 2067    |
| Reynolds and Miller (1992, JBV). First example of empirically examining the NVC process as a sequence of time-ordered actions/events | E    | 616     |
| Bird (1992, ETP). Essay providing an interesting early example of deep interest in several aspects of time and temporality in the NVC process (cf. Wood et al., 2019) | C    | 495     |
| Larson and Starr (1993, ETP). Early example of focusing on a distinct subprocess of new venture creation, the evolution of networking | C    | 1253    |
| Bhave (1994, JBV). Identifies 1) the wish to (identify an opportunity to) start a business and 2) generalizing a solution for an own problem as alternative starting points of eventually converging creation processes | E    | 1307    |
| Carter et al. (1996, JBV). First empirical examination of sequences of time-stamped start-up activities, comparing processes with different outcomes | E    | 1336    |
| Alsos and Kolvereid (1998, ETP). First example of comparing process differences across categories of founders or ventures | E    | 384     |
| Sarasvathy (2001, AMR). Introduces one of the most cited frameworks in subsequent NVC process research: Effectuation Theory³ | C    | 5109    |
| Davidsson and Honig (2003, JBV). Early example of venture creation research comparing hypothesized effects over varying time frames | E    | 4966    |
| Delmar and Shane (2004, JBV). Pioneer the application of Event History Analysis to NVC process data | E    | 1009    |
| Lichtenstein et al. (2007, JBV). Pioneer analyzing the NVC process not in terms of particular (types of) activities but as rate, timing and concentration of activity | E    | 418     |
| Alvarez and Barney (2007, SEJ). Coin “Discovery Theory” vs. “Creation Theory” in summarizing planned-linear vs. emerging-iterative-interactive views of the process | C    | 2125    |
| Shah and Tripsas (2007, SEJ). Independent elaboration on Bhave’s (1994) type 2 process and early discussion of dispersed entrepreneurial agency (cf. Nambisan, 2017) | E    | 666     |
| Dimov (2007, ETP). Pioneering insights into the evolving nature of “opportunities” and dispersed agency in the venture creation process³ | C    | 618     |
| Foo et al. (2009, JAP). Pioneer the use of Experience Sampling Method for intensive study of NVC process issues³ (cf. Uy et al., 2015) | E    | 438     |
| Moroz and Hindle (2012, ETP). Review of process models in past research in search of “what is both generic and distinct about entrepreneurship as a process?” | C    | 441     |
| McMullen and Dimov (2013), JMS). Essay discussing the challenges and opportunities of studying NVC processes | C    | 373     |
| Gielnik et al. (2015, AMJ). Provide an exemplar for causal analysis of a pointed process issue by combining observational and experimental process data | E    | 128     |

(Continued)
The table reveals an important chain of conceptual development: Katz and Gartner’s (1988) delineation of early markers of the emergence of a venture as separate from the agent; Bygrave and Hofer’s (1992) frequently applied NVC process definition; Bhave’s (1994) discovery of what Shah and Tripsas (2007) later called the “user-entrepreneur” process; Sarasvathy’s (2001) launch of Effectuation Theory to mitigate a frustrating void of language for deviations from the textbooks’ rationalistic planning→execution processes; Alvarez and Barney’s (2007) and Dimov’s (2007) additional conceptualizations of NVC as an iterative and interactive rather than linear journey; Lichtenstein et al.’s (2007) capture of the characteristics of the process itself rather than its manifest contents; and the contemporary style of more tightly focused and deeply theorized subprocess research as spearheaded by Larson and Starr (1993) and recently represented by Gielnik et al. (2015).

Similarly, the table lists method milestones: PSED’s innovations of mechanisms for sampling nascent ventures and recording a set of time-stamped “gestation activities” (Carter et al., 1996; Reynolds & Miller, 1992); Delmar and Shane’s (2004) early application of Event History Analysis, using these venture specific activities rather than interview waves as process timeline; the introduction of shorter duration but higher intensity tracking of processes by Foo et al. (2009); and Held et al.’s (2018) pioneering application of sequence analysis (Abbott, 1995).

The compilation of articles and their citation statistics in Table 1 celebrates an important line of entrepreneurship research. Thanks to these works and others guided by them, a few broad generalizations about the NVC process are widely accepted today:

- At least three different modes of entry into the process appear to be commonplace: (1) a wish to start a business followed by search, evaluation, choice, refinement, and implementation of ideas; (2) a personal nonbusiness problem solution generalized to a business idea (Bhave, 1994) without consideration of other ideas, and (3) an agent with at best a latent interest in venturing unexpectedly encountering an idea/opportunity that fits their particular experience and which they decide to pursue (Shane, 2000).
- The process is exceedingly variable in duration, content, and sequence. On the level of manifest actions, almost any sequence is possible (Arenius et al., 2017; Carter et al., 1996; Liao et al., 2005; Reynolds & Miller, 1992), as are durations varying from a couple of months to over 10 years (Reynolds, 2006, 2016).
- The process can range from planned-linear-rationalistic to highly iterative and serendipitous, with some disagreement among authors regarding the descriptive and prescriptive
validity of these extremes (Alvarez & Barney, 2007; Chwolka & Raith, 2012; Delmar & Shane, 2004; Dimov, 2007; Wood & McKinley, 2010).

This variability naturally adds to the general challenges of process research acknowledged within and beyond entrepreneurship, for example, that scholars use “process” in many different ways (Van de Ven, 1992), that there is “no confirmed orthodoxy” in organizational process research (Pettigrew, 2012, p. 1316) and that process ontologies vary and sometimes are incompatible (Langley et al., 2013). For empirical work, the temporal dimension adds challenges without removing any of those that pertain also to all other research (Menard, 2002; Shim & Davidsson, 2018; Yang & Aldrich, 2012).

Arguably, these challenges multiply when one tries to aggregate process-oriented research. Bearing this in mind, we now turn to our systematic review.

The Systematic Review

Review Approach and Scope

As mentioned in the Introduction our systematic review aims to provide a transparent and unbiased portrayal (Rauch, 2019; Tranfield et al., 2003) of research on the NVC process understood as a venture’s journey from initiation to completion of its creation (Davidsson, 2016; McMullen & Dimov, 2013; Shane & Venkataraman, 2000). Thus, the interest is not in an individual’s entrepreneurial career nor in a venture’s continued existence as an established entity. As a pragmatic delimitation, we focus on the creation of independent ventures. We apply a broad view of “process” and aim to include all articles where describing, explaining, or being explained by what happens between initiation and completion of the NVC process is a main emphasis (but not necessarily the main emphasis). The portrayal is necessarily limited to what has and has not been done; where, when, and how? in such research. The specifics addressed in the articles are so diverse that we cannot offer assessment of the cumulative evidence on particular issues.

The review covers articles with final or “online first” publication dates from January 1, 1990 to June 30, 2019 in 21 leading journals in management, entrepreneurship, innovation, and international business selected based on their ranking in the 2018 Academic Journal Guide (AJG; sometimes called the “ABS list”; cf. Saebi et al., 2019).1

The heterogeneous nature of the reviewed literature necessitated elaborate, iterative processes of developing search terms, inclusion/exclusion criteria, coding categories, and codes. Our article identification and selection process involved independent and collaborative work by the two authors, with final criteria and codes requiring the agreement of both.2 A sample of 1472 articles was identified in ProQuest and Scopus with the final version of the search terms. This was trimmed down to a final set of 116 articles through three rounds of elimination based on (1) examination of title/abstract, (2) full text examination, and (3) initial coding of process contents. The 116 articles were coded comprehensively in a sheet containing many thousand cells. A detailed account of the journals, search terms, inclusion criteria, and procedures is given in the Appendix.

Table 2 illustrates the challenging ambiguity and diversity of this literature. Authors of the 116 articles that satisfied our criteria for nontrivial coverage of the process as delineated above usually do not provide their own definition or delineation of the process they are studying. However, they use an astounding variety of terms for the process under study, aggravated by variation in use of terminology both for the focal entity (firm, venture, business, start-up, organ[s/z]ion[al]), and the process (emergence, creation, formation, founding, etc.). The most popular and least defined way of referring to the studied process is “[the] entrepreneurial
process,” a term also found in many articles that were excluded from the review. Conversely, note the 18 instances of “none of the above” which significantly cover the NVC process without using any of the more common ways of referring to it. Despite our efforts to refine search terms and inclusion criteria, the ambiguity and diversity mean that we cannot boast complete coverage or achieve status as the unquestionable account of the NVC process literature. Our systematic review should rather be taken as one relevant portrayal of that literature.

### Characteristics of NVC Process Research and Its Development over Time

Table 3 displays some key data that serve to describe research on the NVC process and its development over time. Much of the information in the table clearly indicates positive development.

- Increase in the total number of articles, number of journals publishing NVC process research, and articles appearing in top management journals. This indicates that NVC process research is growing in quantity, quality, and appeal.
- Large absolute and relative increase in empirical articles, arguably reflecting a better balance between discussing and conceptualizing NVC as a process on the one hand and addressing it empirically in this manner on the other.
- Large absolute and relative increase in articles providing formal hypotheses or propositions; contemporaneous rather than retrospective data collection, using techniques developed for process research, and a greater number of data collection waves/points. For quantitative studies, increase in median sample size can be added. These are indicators of increased theoretical and methodological sophistication.

Other developments have both an upside and a downside. For example, a growing proportion addresses a subprocess within the NVC process should make possible greater depth and precision regarding the studied subprocess. The caveat is that other results call into question that the

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**Table 2. Authors’ Use of Terminology for the Studied Process.**

| Articles that include… | Article count | Articles % | Total instances |
|------------------------|--------------|------------|----------------|
| “Entrepreneurial process” | 65           | 56         | 562            |
| “Entrepreneurship process” | 13           | 11         | 60             |
| “Start-up process” varieties | 39           | 34         | 203            |
| “Creation process” varieties | 52           | 49         | 231            |
| “Emergence process” varieties | 14           | 12         | 37             |
| “Formation process” varieties | 16           | 14         | 31             |
| None of the above | 18           | 16         | 18             |
| One of the above | 33           | 28         | 33             |
| Three or more of the above | 26           | 22         | 26             |
| A definition of the studied process | 18           | 16         | 18             |

Note. Based on NVivo search of the 116 included manuscripts with manual exclusion of instances outside main body text. *In search of definitions, we inspected all instances of “defin*” and “concei*” as well as the ten first occurrences of “process” in each manuscript (cf. Davidsson, 2015). Another 12 manuscripts were coded 0.5 for “not complete absence of definition.” *Ten varieties, for example, “process of starting a [new] business/venture/ organis[isation].” *Seventeen such variations of terminology and word order, including also “organis[ational].”
Table 3. Development of Entrepreneurial Process Research Across Time Periods.

|                                | Period 1 (1990–1999) | Period 2 (2000–2009) | Period 3 (2010–2019) | Total |
|--------------------------------|-----------------------|-----------------------|-----------------------|-------|
| Number of articles             | 19                    | 32                    | 65                    | 116   |
| Number of journals with at least 1 article | 4                    | 10                    | 12                    | 15    |
| Number and percent of articles that are: |                      |                       |                       |       |
| Published in *Entrepreneurship Theory & Practice* and *Journal of Business Venturing* combined | 15                    | 17                    | 17                    | 49    |
| Published in top management journals | 1                    | 3                     | 13                    | 17    |
| Offering formal propositions or hypotheses | 4                    | 16                    | 38                    | 58    |
| Having the New Venture Creation (NVC) process as a main emphasis | 15                    | 22                    | 28                    | 65    |
| Having an NVC subprocess as a main emphasis | 4                    | 10                    | 37                    | 51    |
| Empirical                      | 8                     | 18                    | 46                    | 72    |
| Within empirical:              |                       |                       |                       |       |
| Quantitative                   | 4                     | 13                    | 24                    | 41    |
| Qualitative                    | 4                     | 3                     | 20                    | 27    |
| Mixed method                   | 0                     | 2                     | 2                     | 4     |
| Collecting data during the NVC process: Quantitative | 2                     | 9                     | 20                    | 31    |
| Collecting data during the NVC process: Qualitative | 0                     | 1                     | 14                    | 15    |
| Applying process specific data techniques for data collection/analysis: Quantitative | 0                     | 5                     | 13                    | 18    |
| Applying process specific data techniques for data collection/analysis: Qualitative | 0                     | 0                     | 6                     | 6     |
| Selected mean (median) data for articles |                       |                       |                       |       |
| Sample size: Quantitative      | 812 (116)             | 455 (263)             | 554 (363)             | 548 (271) |
| Sample size: Qualitative       | 25 (28)               | 4 (5)                 | 12 (7.5)              | 13 (7)  |
| Number of data collection waves/points: Quantitative | 1.5 (1.5)             | 3.1 (3)               | 5.7 (3.5)             | 4.5 (3) |
| Number of data collection waves/points: Qualitative | 1 (1)                 | 1 (1)                 | 4.5 (2)               | 3.7 (1) |

Note. Having the NVC process as a main emphasis does not require a holistic ambition but indicates inclusion of multiple factors deemed salient to the description, explanation, or outcomes of NVC processes overall. This classification is based on the data collection and analysis logics rather than on number of cases. Hence, Hansen and Bird (1998; 18 cases) is counted as quantitative; Grimes (2018; 59 cases) as qualitative, and Gielnik et al. (2015) (testing hypotheses with experimental and observational data) is not coded as mixed method.
field has developed a sufficiently strong and shared understanding of the NVC process in order to effectively accumulate knowledge about subprocesses within it. Other patterns in the data unambiguously indicate problems. For example:

- Considering the qualitative and quantitative growth of entrepreneurship research in general (McMullen, 2019; Meyer et al., 2014) and repeated calls for process research (Hjorth et al., 2015; McMullen & Dimov, 2013), neither the total number of qualifying articles nor the absolute growth over time stands out as impressive.
- While improvements in terms of data collection during the process, number of data collection waves, and application of process-specific techniques have accelerated in the most recent period, the levels remain lower in the qualitative category.
- Perplexingly, despite the overall growth there has been almost no increase at all in process-oriented studies in the leading entrepreneurship journals. While *Journal of Business Venturing* and *Entrepreneurship Theory & Practice* were dominant in the 1990s, their collective “market share” more recently has been 26%.

**Samples and Cases Under Study**

Table 4 summarizes the type of ventures studied and their geographic location. The results show that quantitative studies typically use broadly representative data sets. Despite the virtue of representativeness, it can be questioned whether process dynamics really generalize so broadly (Johns, 2006; Welter, 2011). Qualitative studies often use more homogenous sets of ventures, which have some clear advantages such as reducing causal heterogeneity and unmeasured heterogeneity (Johns, 2006; Shugan, 2006). As regards geographic origin, the results reveal that although NVC process studies have been carried out all over the world, there is a strong dominance for North American and Western European contexts. Numbers for sampling from incubators, accelerators, and the like are low because this is a recent practice which is likely to grow in the future. All recorded instances occurred in 2015 or later.

**Process Issues Addressed in Hypotheses**

To be able to provide a quantitative account of the extent and nature of processual issues covered in the literature, we focus first on the 30 manuscripts providing hypotheses. In the section Distilling a More Deeply Processual Subset, we will contrast this with a similar-sized set representing a different approach. For the hypothesis coding, we iteratively developed two broad categories of process coverage: *process situated event* and *process pattern*. The former denotes something occurring in the process—it would not be captured in research linking initial conditions to process outcomes—but which in itself is not processual. For example, in Davidsson and Gordon (2016), the independent variable in all hypotheses is the onset of the Global Financial Crisis—an (external) event occurring during and supposedly affecting the NVC process. In Samuelsson and Davidsson (2009), “social reinforcement” is coded as an (internal) event occurring during the process. Process pattern denotes the more genuinely processual, like the duration or varying intensity of the process; the timing, speed, and sequence of activities within the process; effects of a variable hypothesized as contingent on the venture’s stage of development as the cause or effect in the hypothesis.

Table 5 summarizes the results. It turns out that despite our selection of articles emphasizing process, instances of “process situated event” are at least as numerous as instances of “process pattern.” Within the process pattern category, the range of process issues addressed is encouraging. However, the absolute numbers are small, and individual studies generally look more
impressive on the basis of the novelty they bring than for their contribution to cumulative evidence within research streams.

With nine studies and 35 hypotheses, process intensity has the highest prevalence. However, apart from Lichtenstein et al.’s (2007) capture of rate, concentration, and timing (see also Hopp & Sonderegger, 2015; Manolova et al., 2012) of activity, intensity is rather vaguely conceptualized and operationalized by using change in effort or (rate of) progress as independent or dependent variable.

Cause evolution and effect evolution have similar, somewhat substantial representation. By shifting emphasis from cross-case comparison to within-case developments, this type of hypothesis arguably makes causal inferences somewhat more justified. Stage dependence—the effect assumed to vary by the venture’s stage of development—has surprisingly scant representation. Low numbers are also found for process pattern hypotheses pertaining to particular activities (speed, timing, frequency, and sequence).

**Distilling a More Deeply Processual Subset**

To counterbalance the Process Issues Addressed in Hypotheses section’s emphasis on hypotheses, we attempt in this section to distill a more deeply processual subset within the 116 reviewed articles. We base this exercise on citations of well-known process scholars and their works on the one hand, and the use of process theoretic terminology on the other. Results are displayed in Table 6.6.

As regards process scholars to build on, we note that about half the sample does not cite any of the listed authors. Further, those more frequently cited tend to operate within entrepreneurship: Van de Ven’s process method advice and demonstrations in multiple works in the borderland between entrepreneurship and innovation, and Bhave’s (1994) one-off NVC process contribution. Renowned process scholars from outside of entrepreneurship are less cited, although Langley appears to have been a major influence in more than a handful cases.

Turning to terminology, we likewise note that half the sample does not use any of the terms selected for the table. More frequently used process terms exist: stage and phase (94 and 65 articles, respectively) appear so often and so loosely that they arguably do not discriminate well...
for depth of process treatment. The low frequency for process theory is surprising given that every manuscript using this term over the last 30 years in the targeted journals was considered for inclusion in our review (see Table A2). It suggests that the contrasting of “process theory” to “variance theory” (Mohr, 1982; Van de Ven, 1992) has not been widely adopted. Even less in use is the contrast between “event-driven” and “outcome-driven” explanations (Aldrich, 2001). Use of the technical term critical incident is likewise low, although similar ideas appear under the guise of “critical events” (Hung, 2006) and “key events” (Morris et al., 2012). Process model and path dependence have notable prevalence, and effectuation (Sarasvathy, 2001) stands out as a recurring theoretical perspective in this literature.

Finding objective criteria for distilling a more deeply process focused subset of articles based on this information is no easy task. As one of many possible approximations, we choose those articles that meet at least three criteria on either the list of authors or the process theoretic terms list, meaning that they have engaged with multiple terms/authors in Table 6 and usually more deeply with at least one of them. This is not a high threshold but yields a set of articles of the same size as those offering hypotheses (see Process Issues Addressed in Hypotheses section). In Table 7, we use a broadened analysis of process term frequency performed in NVivo to contrast the “deeply process engaged” articles meeting the criteria with those offering hypotheses.

Table 5. Process Related Hypotheses in the Reviewed Literature.

| Hypothesis content | # Articles | # Hypotheses |
|--------------------|------------|--------------|
| Process situated “event” as independent variable | 20 | 70 |
| Process situated “event” as dependent variable | 13 | 43 |
| Process situated “event” as moderator | 12 | 22 |
| Process situated “event” as mediator | 2 | 3 |
| Process situated “event” in other hypothesized role | 0 | 0 |
| Process pattern as independent variable | 17 | 53 |
| Process pattern as dependent variable | 14 | 57 |
| Process pattern as moderator | 5 | 8 |
| Process pattern as mediator | 1 | 2 |
| Process pattern in other hypothesized role | 1 | 1 |

Within process pattern: hypotheses involving...

- Duration of the overall process | 2 | 9 |
- Intensity of the overall process | 9 | 35 |
- Sequence of activities within the process | 3 | 7 |
- The Speed by which particular activities are undertaken | 3 | 4 |
- The Frequency by which particular activities are undertaken | 1 | 2 |
- The Timing of particular activities | 4 | 10 |
- Stage dependence of the effects of activities and events in the process | 4 | 9 |
- Cause evolution | 5 | 20 |
- Effect evolution | 5 | 17 |
- Multiple process pattern categories | 1 | 1 |

Note. Based on the 30 papers in the sample that offer formal hypotheses. Process situated “event” = circumstance occurring within the new venture creation process [after initiation; before conclusion] without being processual in itself. Process pattern = a variable or type of effect that is inherently processual as indicated by their labels in the lower part of the table. Because hypotheses can include process issues in several roles, entries do not sum up to the total number of hypotheses with process content.
This analysis shows, as expected, that the “deeply process engaged” makes more use of process terms. At 28%, the difference across all terms is modest, though. The patterns of frequently used terms in the two subsets are more revealing. These clearly suggest that the “deeply process engaged” makes more use of process terms. At 28%, the difference across all terms is modest, though. The patterns of frequently used terms in the two subsets are more revealing. These clearly suggest that the “deeply process engaged” makes more use of process terms.

### Table 6. Process Research Authors Cited and Process Theoretic Terms Used.

| Process research authors | Cite | Cite 3+ times | Process terms | Mention | Mention 3+ times |
|--------------------------|------|--------------|---------------|---------|-----------------|
| Aldrich (2001)           | 3    | 0            | Process theory| 10      | 5               |
| Bhave (1994)             | 20   | 2            | Process model | 26      | 11              |
| Gersick⁵                 | 12   | 6            | Process tracing| 1       | 1               |
| Langley⁵                 | 16   | 8            | Event-driven  | 4       | 0               |
| Mohr (1982)              | 7    | 3            | Critical incident[s] | 4 | 2               |
| Pentland (1999)          | 6    | 1            | Path dependen[t][y][cies] | 24 | 7               |
| Pettigrew⁵               | 7    | 0            | Punctuated equilibrium[a] | 15 | 5               |
| Van de Vena              | 28   | 11           | Effectuation  | 25      | 12              |

**Note.** Entries based on occurrences in abstract and body text. “Score” is calculated as “1” for each source or term with cite/mention = 1 and another “1” for each “≥3 times” =1. “Scored for process research works only, see reference list for examples.

### Table 7. Comparative Use of Process Terms in Two Subsets of Articles.

| Thirty “deeply process engaged” articles | Surplus use | Thirty articles with hypotheses | Surplus use |
|------------------------------------------|-------------|---------------------------------|-------------|
| Top 10 surplus terms                    |             | Top 10 surplus terms            |             |
| Process                                  | 120%        | Time                            | 77%         |
| Develop⁵                                 | 123%        | Progress                        | 477%        |
| Change⁵                                  | 41%         | Rate⁵                          | 207%        |
| Stage⁵                                   | 11%         | Speed⁵                        | 1233%       |
| Phase⁵                                   | 190%        | Emerging                       | 149%        |
| Order⁵                                   | 67%         | Timing                          | 143%        |
| Effectuation                             | 1747%       | Temporal⁵                      | 23%         |
| Transition⁵                              | 197%        | Duration³                      | 167%        |
| Sequence⁵                                | 67%         | Fast³                          | 114%        |
| Evolution⁵                               | 150%        | Frequency³                     | 152%        |

**Note.** “Top 10 surplus terms” lists in descending order of within category frequency the terms which appear more frequently than in the contrast category. “Surplus use” denotes how much more frequent the term is than in the contrast category. “These entries are composites of, for example, develop/s/ing/ment/s; temporal/ly/ity; fast/er/est.
engaged” papers reflect an interest in process as a journey through qualitative changes in content (change, development, evolution, stages/phases, transitions, sequence/order and, perhaps, effec-
tuation). This maps well onto Van de Ven’ (1992, p. 169) third (and preferred) meaning of “pro-
process” as “a sequence of events that describes how things change over time.” By contrast, the hypothesis papers direct more interest to process as a directional and temporal journey toward a goal (progress, speed, rate, fast, duration, time, timing, and temporal). We would argue that these represent complementary aspects of “process.”

One additional difference is worth comment. The “process as qualitative change” group shows more emphasis on change (evolution and development) whereas the “process as directional jour-
ney” group has surplus use of the notion of emerging. For something to change, it needs to already have emerged; it needs to exist. Therefore, the research addressing process as a directional and temporal journey toward a goal may currently take a stance better aligned with what we highlight in our Introduction: “making valuable contributions to the broader domain of economic and organizational research, which otherwise typically starts from assumptions of existing organiza-
tions.” This said, it is important to keep in mind that along this and every other dimension the group differences represent tendencies rather than a bimodal distribution of two distinct groups with few “in-betweens.”

In other descriptive terms, the deeply process engaged articles are overrepresented in the most recent time period (21 articles), possibly indicating one direction in which NVC process research is going. Interestingly despite this, a high proportion (45%) is published in either ETP or JBV. This leaves a more positive image of how process research is appreciated by these journals compared to what we derived from Table 3. Interestingly, most works in the set (21 articles) address the NVC process “as a whole” rather than a subprocess, contrary to the overall trend in Table 3. The empirical works in the set rely heavily on qualitative methods, including four of the five studies in our review that build on a single, in-depth case study (Hung, 2006; Jones & Li, 2017; Miozzo & DiVito, 2020; Perrini et al., 2010). It also includes all three mixed method papers in our review (Kaulio, 2003; Lichtenstein et al., 2006: Reymen et al., 2015) and the only explicit example of process tracing (PT) techniques (Muñoz et al., 2018). The nonempirical subset includes the sole example of agent-based simulation (Mauer et al., 2018). This concentration of otherwise infrequent approaches no doubt reflects the particular challenges of studying process as a journey through qualitative changes in content.

The Processes Within the Process: Research on NVC Subprocesses

Figure 1 exemplifies various subprocesses within the overall NVC process and the development of subprocess research over time. These subprocesses may span across and beyond the NVC process (such as network development) or only extend over a fraction of it (such as the process of securing seed money). Through the three time periods investigated (Table 3), the emphasis has gradually shifted from “whole process” to subprocess research with subprocesses taking the lead during the most recent time period and currently representing almost half ($n = 51$) of the 116 articles.

The most frequently studied subprocesses concern development of the idea/opportunity, and of networks/social capital. They both address sequence in terms of identifiable, progressive, and variously labeled stages of the process. In the idea/opportunity stream, this is exemplified by, for example, Mauer et al. (2018) and Wood and McKinley (2010). Some focus on a single stage, such as early search for and choice among ideas (Fiet et al., 2005; Gruber et al., 2008). Despite using sequential stages models, authors often caution that the progression is not necessarily lin-
ear, making Miozzo and DiVito (2020) take the logical step to talk instead of recursive cycles.
Much of the research on networks and social capital emphasizes their importance for resource acquisition and venture success (Hung, 2006; Larson & Starr, 1993; Newbert et al., 2013). This research stream is processual both by examining the development of networks or social capital in themselves and by relating this subprocess to the shifting requirements at different points of the overall NVC process (Maurer & Ebers, 2006; Yli-Kauhaluoma, 2009). This stage dependence is a reminder for all subprocess research that the narrower focus does not eliminate the need to track the overall process.

In a sense, the networks and social capital stream just put extra emphasis on a theme that is prominent throughout the NVC process literature: development in close interaction with the environment. This contrasts with the alleged agent focus of entrepreneurship research in general (Davidsson, 2019; Shane & Venkataraman, 2000) and is aligned with the call for emphasis on a new “nexus between action and interaction” (Venkataraman et al., 2012, p. 28). It applies to other subprocess streams as well. For example, the idea/opportunity stream strongly emphasizes interaction with stakeholders and peers (Davidsson et al., 2006; Grimes, 2018; Snihur et al., 2017; Tocher et al., 2015; Wood et al., 2019).

**New Venture Creation Process Research: The Current State of Affairs**

The reviewed literature covers an impressive breadth of topics and research approaches, illuminating many interesting and important process issues in creative ways. Yet, an inescapable main conclusion of our review is that there does not exist a sizable and unified literature (or literatures) on the NVC process. For a 30-year period across 21 journals, the number of articles in our review is not large, yet the foci and terminology in these 116 articles are highly variable (Tables 2 and 3). Although the two perspectives on process revealed in Table 7 to some degree revolve around shared methodological influences (process theorists and the PSED empirical paradigm,
respectively), they do not represent tightly knit communities. Few address the same temporal and process-related issues (Tables 5 and 6; Figure 1), and the extent of effective accumulation of knowledge on the independent NVC process as we have delineated it seems limited.

Further, the difference in orientation of the two strands in Table 7 limit the potential for knowledge integration across paradigms (van Burg & Romme, 2014). This is aggravated by qualitative and quantitative studies drawing on different types of samples while sharing a problematically strong dominance for developed countries in Western Europe and North America (Table 4). A large proportion of the quantitative evidence—26 of 41 samples in Table 4 and 68 of 100 process pattern hypotheses in Table 5—are based on data from the PSED including its pilot studies and international counterparts (see Reynolds & Curtin, 2010). While this speaks to the uniqueness and importance of this research program, it also means that much of the evidence originates from a small number of data sets building on samples that are highly heterogeneous, yet dominated by a “modest majority” of low ambition and low potential ventures (Davidsson & Gordon, 2012).

This summary is not meant to criticize individual studies. All studies in our review are published in highly ranked journals and many of them exemplify excellent scholarship. Further, many works may contribute primarily to a different “whole” than the NVC process “stream” into which we forced them. The problem is that after over 30 years of testimony to the centrality of a process view of new venture creation to our domain (Bygrave & Hofer, 1992; Dimov, 2020; Gartner, 1985; Low & MacMillan, 1988; McMullen & Dimov, 2013; Shane & Venkataraman, 2000), the field of entrepreneurship does not have much of a unified body (or parallel, alternative bodies of significant magnitude) of knowledge about the NVC process which we discuss in a broadly shared terminology.

This said, we found many signs of positive developments in our systematic review. We also found many instances of exemplary approaches and contributions when we took a deeper dive into the contents of the 116 articles. In the following, we draw on these positive signs and examples in developing ideas and guidelines for future research on the NVC process.

**Research Agenda: Types of Contribution**

**Addressing Gaps and Omissions Identified by Our Systematic Review**

One way to identify possible future contributions to NVC process research is to look at the gaps and apparent omissions revealed by our systematic review. Table 4 suggests there is a shortage of quantitative process studies following relatively homogeneous and/or “higher potential” samples—for example, start-ups in particular industries or leveraging specific technologies—using samples from incubators, accelerators, or the like. In the qualitative subsample the shortage is process studies of the modest majority of grassroots entrepreneurship. Currently, Yessoufou et al.’s (2018) study of vegetable farmers in Benin has little competition in the “base of the pyramid” category. That study also illustrates the shortage of studies from outside of Western Europe and North America (cf. Welter et al., 2017). A surprise in our review were the few process-oriented studies from China, which has otherwise become a prevalent entrepreneurship research context in recent years (Xu et al., 2018). Coverage of alternative spatial contexts is particularly welcome if the study explicitly makes the case for broader generalizability than previously known or provides evidence on spatial variation in process phenomena as well as theoretical explanations for these.

Table 6 points to underutilized process concepts, tools, and advice on method and theorizing. The contrast in Table 7 reveals a theme in the “deeply process engaged” research that may not have been considered sufficiently in hypothesis testing research, namely *process as a journey*
through qualitative changes in content. Conversely, more traditional process research may have neglected the perspective of process as a directional and temporal journey toward a goal that is prevalent in articles offering hypotheses. This said, Table 5 demonstrates that issues like frequency, timing, and stage dependence of particular actions in the process are certainly not overdone in hypothesis testing research, either. At the time of writing, the extreme swiftness of entrepreneurial responses to the COVID-19 pandemic makes process speed and duration particularly interesting. There may be lessons here about achieving much in little time, which can be applied also under more normal conditions.

Opportunities for Theory Extension, Refinement, and Elaboration

One important way to contribute new NVC process insights is to add a processual element to existing theories and empirical generalizations. There are several excellent examples of this type of contribution in our review. For example, using panel data from the Danish PSED counterpart, Klyver et al. (2018) argue and partially verify that emotional social support is relatively more important early on, whereas the importance of instrumental social support increases further into the process. This adds an interesting temporal element to this relationship. Similarly, Gielnik et al. (2015) argue and empirically support that effort leads to increased passion rather than the other way around, somewhat akin to William James’ classic assertion “I am afraid because I run” from the early days of psychology as an academic discipline (Myers, 1969). Although reciprocal causality should not be excluded, this is quite an important addition to entrepreneurial passion theory with clear implications for entrepreneurship education and mentoring.

Turning to a “small n” example, by carefully tracking actions over time as per Langley’s (1999) “quantification strategy” for process research building, Reymen et al. (2015) identify case specific shifts in the relative effectuation-causation emphases over time (cf. also Packard et al., 2017). Linking these reversals to decisions to alter the venture’s scope in terms of, for example, products and markets (cf. Davidsson et al., 2006) allows a powerful generalization: regardless of time elapsed since initiation, widening of the venture’s scope tends to be followed by an increase in the use of effectuation, and vice versa. They thus provide an important, temporal bracketing-based (Langley, 1999) elaboration of a widely used and taught entrepreneurship theory.

Given the paucity of NVC process research, there are many more contributions to be made along the lines of these three examples. In search of such opportunities, we encourage researchers to consult sources like Fisher and Aguinis’ (2017) classification of and guidance for theory elaboration. The above examples are variations of what they call structuring theory elaboration in response to a need to improve “the explanatory and predictive adequacy of an existing theory” (p. 450). The examples cover or touch upon all three subcategories within structuring: temporal specification of a relationship, sequence relations, and recursive relations. For structuring contributions to NVC process theory, thought experiments and metaphors (see Shepherd & Suddaby, 2017) may be particularly useful theorizing tools. This entails pondering questions like “What would change, and how, when a temporal dimension is added to known variable relationship X?” and “Of what more general phenomenon is Z a special case—and can processual insights from other instances of that phenomenon be transferred to the NVC process context?”

Contrasting is another type of theory elaboration discussed by Fisher and Aguinis’ (2017). In our context, horizontal contrasting is a candidate for contributions to NVC process theory across contexts like types of countries, cultures, or industries; grassroots start-ups versus their high potential counterparts (Welter et al., 2017) and expert versus novice entrepreneurs. Theory elaboration through vertical contrasting could, for example, refine the micro-foundations of a theory known to explain NVC process phenomena on the aggregate level.
Fisher and Aguinis (2017) third category of theory elaboration is construct specification, including construct splitting. A relevant example is Davidsson (2015) splitting the various meanings of “opportunity” into external enablers, new venture ideas, and opportunity confidence, which was in part driven by temporal considerations. As explained by Davidsson (2017, p. 67), the three elements are “ontologically very different entities” which “can change independently from each other at different points in time.” Hence, bundling them into a single construct creates problems in a process analysis. Future contributors may identify other entrepreneurship constructs in need of respecification to fit into a processual view.

Beyond Fisher and Aguinis (2017), Langley’s (1999) “alternate templates strategy” would seem to be a way out of the limitations of and stalemate between current versions of “Discovery Theory” (Shane, 2003) and various strands of “Creation Theory” (Alvarez & Barney, 2007; Dimov, 2007; Wood & McKinley, 2010) in understanding NVC processes. In fact, both external conditions (Alvarez & Barney, 2013, p. 155) and creative agency (Eckhardt & Shane, 2003, p. 336) seem universally acknowledged as essential ingredients in such processes. Therefore, out of the multiple ways in which the essence of the “discovery” versus “creation” distinction has been cast (e.g., as different “types” of opportunities or processes, or as generally more/less valid), the most productive may be to see them as alternate templates through which any NVC process can be fruitfully analyzed. Relatedly, rather than classifying processes (or parts thereof) as causal versus effectual, the alternate templates strategy can increase understanding of cases—and abstractions from them—by applying both lenses.

Opportunities for Theory Building

Researchers who set out to do research on the NVC process do not have a rich trove of process-oriented theory to choose from, neither inside nor outside of entrepreneurship research. There is thus both room and need for new theory. This does not mean that theorizing has to start from scratch. For example, subscribing to the “grounded theory” strategy for building theory from small n, process data (cf. Langley, 1999), Grimes (2018) builds on and combines broader literatures on creative revision and applies them to the special case of venture idea pivoting in response to stakeholder feedback. In terms of Shepherd and Suddaby’s (2017) conflict-character-setting-sequence-plot-arc schema for theory building, the identified conflict is that prior work on business model development, lean start-up processes, and the like have not been sufficiently informed by theory considering how issues of identity and psychological ownership make pivoting cumbersome.

The main characters of the theory that Grimes develops from rich, multiple source case data are new concepts on which future research and practice can build. These include reaffirming, abstracting, and relinquishing psychological ownership; transcending, decoupling, and professionalizing “identity work,” and defending, repairing, and reengineering “idea work.” These concepts arguably capture the toil and agony of pivoting in a realistic fashion yet with sufficient abstraction so as to be applicable to the analysis of other cases (cf. Langley et al., 2013, pp. 8–9). In line with Pettigrew (1997, p. 346), there is also a “dependent variable” in his plot—optimal distinctiveness—although this is a less developed part of the theorizing.

While Grimes covers an important NVC subprocess, the central concepts he develops are not highly processual. In this regard, Snihur et al. (2017) provide an interesting complement on the same topic of idea revision based on stakeholder feedback. In their theorizing notions like cycles of translation and transformation; optimal pacing; perceived time available; time taken; and the sustaining of shareholder engagement have central roles.

Another commendable, theory building example is Ambos and Birkinshaw (2010). Their study of nine science-based ventures is aligned with the Warwick process research approach as
described by Pettigrew (1997, p. 341) and exemplifies Langley’s (1999) “temporal bracketing strategy” which she deems suitable when there are “progressions of events and activities separated by identifiable discontinuities in the temporal flow” (Langley et al., 2013, p. 7). Importantly, they apply this strategy “without presuming any progressive developmental logic” (Langley, 1999, p. 703) shared across cases. Ambos and Birkinshaw thus portray the NVC journey as a series of shifts among Aspiration-driven, Capability-driven, and Market-driven archetypes in response to internal weaknesses and external challenges specific to the case. This allows for heterogeneity across contexts and ventures as well as within ventures over time. Yet, they do this with abstractions that are likely to generalize to other science-based ventures and, with suitable adaptations, to other ventures more broadly. Through these well-developed abstractions, they also avoid the risk of case based research becoming little more than idiosyncratic descriptions (Langley et al., 2013, pp. 8–9; Pettigrew, 1997, p. 346), and arrive at theorizing that arguably provides a more fertile basis for assessing and advising individual ventures than a generic and deterministic stages model can provide.

Because reference to “stages” or “phases” is so common and the presentation of a set sequence often clashes with the same authors’ emphasis on how dynamic, iterative, nonlinear, and diverse NVC processes are, there is reason to consider additional ways of avoiding the straightjacket of deterministic stages of development models (cf. Levie & Lichtenstein, 2010; Pettigrew, 1997). One is to model “stage dependence” (cf. Table 5) as contingent on time elapsed since initiation of the process (Gielnik et al., 2014) or number of “gestation activities” completed (Klyver et al., 2018) rather than on a set sequence of qualitatively different stages. Yet another approach is to adopt a stage model while applying a more disaggregated interpretation of it. Inspired by von Briel et al. (2018), we use an adaptation of Bakker and Shepherd’s (2017) three stage model to illustrate this in Figure 2.

In this depiction, various activities and ideas are initiated at different points in time, some of which eventually become fully developed elements of the emerging venture (i.e., the thickening, central arrow). The venture can at any time be classified as being in a particular stage “overall.” A venture level stage transition would mean that the accumulation of (a “crisp” or “fuzzy” set of)

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**Figure 2.** Depiction of an alternative view of process stages.
important milestones has progressed beyond a certain point but not that every activity within the venture has reached a new stage. The venture can thus pursue activities pertaining to all three “stages” at the same time, and these activities can be classified and analyzed according to their own stage rather than the overall stage of the venture. With this view of stages, some of the conceptual benefits that stage models offer can be combined with a realistic view of how real NVC processes unfold.

Opportunities for Theory Development Around Characteristics of the Process Itself

As noted by Pettigrew (1997, p. 338), “Exposing processes requires a process vocabulary.” Although Table 7 illustrates that many terms are in use there seems to be little established, embraced, and recurring language in the NVC literature that captures characteristics of the processes themselves. By this we mean vocabulary capturing not how particular activities change, recur, or are temporally ordered but abstract process patterns. While notions like “critical incident” and “punctuated equilibrium” can be used in this way, the primary example in our review is transition along with Lichtenstein et al.’s (2007) temporal rate, timing, and concentration of gestation activities without consideration of what activities were undertaken.

We believe there is opportunity for radical theoretical contributions here, particularly as concerns the main characters and the plot of the theory (Shepherd & Suddaby, 2017), that is, developing defined process characteristics and conceptualizations pertaining to the prevalence, variance, causes, and consequences of these. This might entail the hitherto sparsely addressed duration of the process. Duration is important because income (partly) foregone may be much more costly than the founders’ out of pocket outlays (Kim et al., 2006) during the process. Duration is in part dependent on the pace of the process, that is, the rate at which it progresses toward conclusion (or termination). This is not identical to process intensity—large amounts of effort and resources per time unit do not always translate to rapid progress. Both pace and intensity can be subject to acceleration and deceleration, adding up to varying extents of oscillation of NVC processes.

While pace and intensity capture variance in process quantity, the familiar notion of transition (including pivoting and implying stages or phases) addresses qualitative change. However, current research typically focuses on the content of such changes. Little attention has been paid to the “pure” process characteristics of transition frequency and magnitude. Research could also address process breadth (the number of activities pursued in parallel), flexibility (the extent to which process activities can be pursued independently), and complexity (e.g., the total number of necessary activities; the number of actors they involve; and their interdependence). These latter characteristics are not temporal in themselves but bound to have temporal consequences. Finally, along with cycles, trajectories, and other such terms, all of the above can be seen as facets of a broader notion of process pattern.

While some of the above notions are partly overlapping and few are completely absent from the reviewed literature, the point is that for most of them there are no carefully developed conceptualizations and operationalizations, and we currently know almost nothing about their prevalence, variance, antecedents, and effects. We believe this to be promising, virgin ground for bold and important contributions to future NVC research.
PSED, Its Counterparts, and Its Future Successor as Bases of NVC Process Contributions

Our exemplar for studying the NVC process “as a whole” is not an individual article, but a research program: the PSED and its international counterpart studies (Davidsson et al., 2011; Frid et al., 2019; Gartner et al., 2004; Reynolds & Curtin, 2010). Its dominant standing in the quantitative part of our review is testimony to its ability to address NVC process issues. And despite many publications, its potential is not exhausted. We believe researchers can make further contributions by applying innovative process conceptualizations to the data; canvassing the contents of the less exploited international data sets; combining data sets to make possible analyses of more homogenous subgroups of ventures (Reynolds, Hechavarria et al., 2016) and using alternative techniques for process analysis (Hak et al., 2013; Held et al., 2018).

This said, one of the greatest strengths of the PSED—the representativeness that allowed mapping out the phenomenon in all its heterogeneity and modesty for the first time—is also its biggest weakness. A modern effort in this vein is needed, addressing more homogenous samples. This would require a willing champion and collaboration across multiple institutions (cf. Davidsson, 2005; Gartner et al., 2004) but should be possible to do via incubators, accelerators, research institutions, and the like. Focusing on two or three distinct types of ventures would eliminate much of the unmeasured heterogeneity problem while providing some opportunity to distinguish the idiosyncratic from the more general. If implemented, research from such a program would no doubt be a centerpiece in a review like ours, conducted 20 years from now.

We recommend that such a program retains PSED’s nascent stage capture of cases while improving on its detailed chronology of “gestation activities” through enhanced theorization, more fine-grained operationalization, and/or more frequent data capture. Existing “small n” studies of the same type of sample (Table 4) could be used for design input. The program could benefit from insights from the subprocess streams identified in our review (Figure 1) and/or consider addressing in “large n” design some themes traditionally tackled in the “deeply process engaged” stream (Table 7). Additional case-based work, experiments, and/or simulations could also enrich such a program in a mixed methods design.

The PSED research stream has been hampered by sometimes applying outcome variables that are ambiguous, poorly matched with the theoretical argument, or overly reliant on the respondent’s subjective assessment (Davidsson & Gordon, 2012, pp. 858–859; 865). Davidsson (2016, Ch. 7) and Shepherd et al. (2019, pp. 144–147) can provide further guidance for this important facet of a future program of this nature.

Research Agenda: Method Opportunities and Challenges in NVC Process Research

Adding a temporal dimension brings additional challenges in terms of design and method. Fortunately, many sources can give general and specific guidance in relation to most of these (e.g., Abbott, 1995; Jebb & Tay, 2017; Hall, 2006; Hassett & Paavilainen-Mäntymäki, 2013; Langley, 1999, 2009; Menard, 2002; Sminia, 2009). In this section, we briefly address some issues of particular significance to NVC process research.

Opportunities and Challenges in Research Design

The first central design issue is to carefully define and operationalize the process under study. This suggestion does not reflect a ‘positivist’ notion of rigor; scholars far from embracing such ideals emphasize the importance of setting process boundaries (Pentland, 1999; Selden &
How the NVC process is defined sets its boundaries, making it possible to temporally locate events within it not just in calendar time but also relative to process start, end, and milestones (cf. Davidsson, 2016, Ch. 7; Katz & Gartner, 1988; McMullen & Dimov, 2013; Schoonhoven et al., 2009).

We recommend defining NVC process initiation on the venture level and as requiring both intention and action with regards to a particular idea for a venture. This serves to exclude cases of intentions (Kautonen et al., 2015) and problem solutions (Shah & Tripsas, 2007) that could but never do become the basis of a new venture creation attempt (cf. Dimov, 2007). Successful conclusion is arguably best defined as becoming an operational economic entity with sustained presence in the marketplace. Various operationalizations have been tried or suggested in past literature (see Davidsson, 2016: Ch. 7; Davidsson & Gordon, 2012; Schoonhoven et al., 2009). Alternatively, the journey ends in termination of the start-up attempt before reaching such sustained presence.

The second major design issue is the choice between prospective (contemporaneous) and retrospective data collection. Due to the severe hindsight and survivorship biases that affect retrospective research (Golden, 1992; Roese & Vohs, 2012), we subscribe to the view that as a general rule, prospective designs—studying NVC processes as they happen—are preferable (Bitektine, 2008; Dimov, 2007; Kozlowski et al., 2013; Langley, 2009). However, prospective NVC process research is often just “less retrospective” rather than observing developments as they happen. Further, prospective research is hit harder by some of the issues discussed below, such as attrition and temporal heterogeneity. Therefore, retrospective design or a combination of the two can sometimes be preferable. On the pros and cons of backward- and forward-looking data collection, see also Langley (2009, pp. 413–415).

The third major design choice is small $n$ versus large $n$. This is contingent on the research question and the current stage of knowledge surrounding it (Edmondson & McManus, 2007). We thus do not find it appropriate to make general recommendations. From our review, we note the predominance of qualitative empirical work in the “deeply process engaged” group but even more, its concentration of works using mixed methods and other infrequent approaches. We also note that Lichtenstein et al. (2007) uniquely qualified for both groups contrasted in Table 7 and more generally that the streams contrasted there demonstrate that building insight into the NVC process is not the exclusive domain of small $n$ research.

Opportunities and Challenges in Sampling and Case Selection

Because the studied entities have not been fully shaped by the conforming forces of social and market pressures (DiMaggio & Powell, 1983), NVC research is particularly subjected to problems of excessive heterogeneity across cases along innumerable dimensions. For most purposes, we would therefore recommend selecting cases and samples representing some more homogenous subset of emerging ventures. This removes noise and allows deeper and arguably more accurate treatment of the study’s core research questions. The problem of generalization is better solved through replications using other theoretically relevant samples or relevant cases from other contexts (Davidsson, 2016, Ch. 9).

A process perspective adds temporal heterogeneity to all other diversity within samples. Temporal heterogeneity raises two important challenges in NVC process research. The first is that sample and case selection mechanisms tend to systematically oversample processes that are of long duration. Gearing sampling and case selection as close as possible to the point of initiation reduces this problem whereas accepting cases anywhere between initiation and conclusion aggravates it (see Shim & Davidsson, 2018; Yang & Aldrich, 2012, for elaboration and remedies). Second, because identifying cases right at the initiation point is unrealistic, the cases captured by the study will likely be unequally far progressed when they enter the study. This can be
mitigated by controlling for initial state (Davidsson & Gordon, 2012) or using temporal information in the data to reorganize the analysis according to the ventures’ own timelines rather than waves of data collection (Delmar & Shane, 2004). Both types of temporal heterogeneity are likely to be reduced through more homogenous sampling/case selection as recommended above.

Process studies also suffer from attrition, that is, cumulating loss over time of cases that participated early in the research (Menard, 2002). This comes in two varieties. First, cases may finalize (or terminate) the process and no longer represent the phenomenon under study. This can be solved by applying a “rotating” or “revolving” panel sampling strategy, where cases that “reach the goal” are replaced by an equal number of new cases captured at an early stage of the process (Cantwell, 2008; Menard, 2002). Second, cases may decline to continue their participation in the study for whatever reason. In our experience, the best mitigation against the latter is to build strong rapport with participants by choosing a data collection format based on direct human interaction (e.g., phone; face to face on site or online); using well-trained interviewers with some business knowledge; making sure information already given is considered in selection and phrasing of further questions; collecting contact information for multiple means of contact and allowing participation through the medium (e.g., landline, cell phone, computer, email, mail, etc.) and the chunk sizes that suit the respondent. We included these tactics in the Comprehensive Australian Study of Entrepreneurial Emergence (CAUSEE). In addition, we mitigated attrition through a final, catchup round aimed at getting outcome information from all reachable cases that had ever participated in the study, including earlier dropouts (see Gruenhagen et al., 2016).

Opportunities and Challenges in Measurement and Recording of Events

A fundamental logic of variable oriented panel studies is to repeat collection of the same variables in the same format in each wave (Menard, 2002). The emerging nature of the phenomena captured in NVC research poses particular challenges in this regard because some issues may simply not apply to all stages of development, or they may change meaning during the journey. Although designers need to keep this in mind, the ideal of the panel logic still applies. Accordingly, the PSED II and other “second generation” PSED studies have much more of true panel design than the original PSED (see Gartner et al., 2004; Gruenhagen et al., 2016; Reynolds & Curtin, 2010).

Regardless of whether the data collection concerns variables or events, the importance of detailed chronological tracking in process research cannot be overemphasized (Pentland, 1999). In our review, such tracking is key to “large n” contributions such as Delmar and Shane (2004), Gielnik, Spitzmuller et al. (2015), and Lichtenstein et al. (2007) as well as “small n” projects such as Ambos and Birkinshaw (2010), Lichtenstein et al. (2006), Maurer and Ebers (2006), Miozzo and DiVito (2020), Muñoz et al. (2018), and Reymen et al. (2015). These also represent specific techniques for achieving and analyzing such tracking. In retrospective designs, the validity of assessed timing of events can be enhanced by using tools like the life history calendar (Freedman et al., 1988; Gielnik et al., 2014).

Dependence on a single source of data has been a challenge for valid assessment of variables and events in the NVC process. “Large n” research has often had to rely on a single informant (with high emotional and financial stakes in the studied phenomenon) because no other realistic alternative existed. For some types of information, this is certainly a very serious threat to validity. A future program as outlined further above should be in a better position to address this. Contemporary high ambition ventures are often team-based, resident in shared workspaces or incubators, and/or participants in accelerators and various pitching events. Further, they may interact with mentors and investors, organize crowdfunding campaigns, and be active on social media. This means that more sources and types of data are available. In “small n” research, there has been less reliance on a single person
but sometimes overreliance on interview data alone. We recommend future contributors to study “small n,” role model papers in leading journals where the authors truly integrate and cross validate information from multiple sources to build a stronger case for their conclusions and theoretical insights.

Opportunities and Challenges in Analysis

Although adoption of process-specific techniques has increased over time in both “quantitative” and “qualitative” streams (Table 3), we believe there are major opportunities in identifying and applying new techniques for processual analysis, including those previously used very little or not at all in NVC process (or even business/management) research. This may require consideration of analysis options at the design stage, so that data collection is designed to get the full potential out of the analysis techniques. Some such techniques are exemplified by Hak et al. (2013), Held et al. (2018), and Muñoz et al. (2018).

Temporal heterogeneity can lead to erroneous conclusions when analyzing drivers of outcomes at a particular point in time (cf. McMullen & Dimov, 2013). The apparently more successful may simply have had a head start or a less complex process to deal with (Samuelsson & Davidsson, 2009), rather than providing prescriptively valid clues about “how to succeed.” Further, relating the contents and patterns of the process to outcomes involves a particular type of endogeneity problem (Hamilton & Nickerson, 2003) because anticipation of future outcomes will affect current actions. If things start to look bright, founders may undertake actions to which the analysis ascribes positive effects on eventual outcomes when some external development was the more fundamental cause of the optimism and the actions. When for whatever reason the outlook turns bleak, founders may either slow down or increase their efforts (Davidsson & Gordon, 2016), potentially making both types of action appear to contribute to a negative outcome that had more fundamental, underlying causes.

Unfortunately, the analysis stage remedies of endogeneity problems often become a publication stage ritual that does not truly solve the issue and often worsens it (Semadeni et al., 2014). If there is serious risk of misattribution of causality of outcomes to process patterns, we suggest the analysis be openly associational rather than causal, or that the authors perform supplemental experiments or simulations to support causal claims (Gielnik et al., 2015; Mauer et al., 2018). Similar caution is advisable when applying analysis stage remedies to missing data resulting from attrition in quantitative research. Powerful techniques exist (Newman, 2014), but when their underlying assumptions are not met, the cure may be worse than the disease.

Conclusion

At the outset of this article, we asked whether entrepreneurship research has been making satisfactory progress in building insights, concepts, theories, and shared understandings about new venture creation as a process. What we found in our review is a rich and varied literature offering many excellent and enticing studies, but which—despite notable growth in quality and quantity—is surprisingly limited in volume and sometimes frustratingly difficult to integrate. Therefore, if by “satisfactory progress” one means there is now enough to fill a solid, evidence-based textbook on the NVC process, the answer is a resounding “No!”

This is a massive opportunity for entrepreneurship researchers. Despite the growth and maturation of our field (Aldrich, 2012; McMullen, 2019; Meyer et al., 2014), here is a substantial, core area where it is still possible to make many contributions that are interesting, important, and novel. In our research agenda, we outlined ways to make such contributions. We hope it can inspire and guide both emerging and established scholars in entrepreneurship to see the importance and opportunities
Davidsson and Gruenhagen

One of the most peculiar revelations of our systematic review was the dwindling role of our leading journals in the recent evolution of the NVC process research stream (Table 3). Although the analysis around Table 6 put some nuance to this finding, we hope our review and agenda can stimulate our leading journals to take back initiative and leadership in this important domain. This can be done through editorials, special issues, appointment and management of associate editors and reviewers, and other means. To become what it should be, this core domain of entrepreneurship research will likely need such institutional backing (Aldrich, 2012). The development of our field cannot rely solely on the choices and contributions of individual researchers.

We applied a broad view of “process.” By so doing, we were able to capture NVC process research beyond that which views process as a journey through qualitative changes in content in line with traditional definitions of “process research” (e.g., Van de Ven, 1992). We also identified research geared toward process as a directional and temporal journey toward a goal, emphasizing progress, speed, time, and duration. We would argue that the two represent complementary perspectives on “process” and that both should be fully acknowledged. Further, although they may currently be addressed with different methods they do not appear to be ontologically incompatible (cf. Langley, 2009).

Our study is not without limitations. The review is restricted to 21 leading journals. Especially given the apparent limited access to top entrepreneurship journals, there will undoubtedly be important NVC process studies in outlets not included in our review. Further, endless variation in terminology means that there is some under coverage within the target journals as well, despite our best efforts to cast a wide net (see Appendix). This may be more pronounced in subprocess research because our search terms did not set out specifically to capture these. Doing so across a large number of subprocesses would be impractical, especially before the strong trend toward subprocess research, and the specific streams within it, were identified. Our general search terms should capture most subprocess research that is strongly process focused, though.

Despite the limitations, we believe our review achieved what we aimed for: providing one relevant portrayal of NVC process research. Similarly, our agenda—which may lack some of the good insights other researchers would have derived from the same material—aims to point out a relevant set of possible future developments rather than comprehensively outlining what should come next. We hope our work will help colleagues in various roles find their various ways to contribute to the future of NVC process research by combining our review and agenda with their own insights, interests, and creativity.

Appendix. Systematic literature review: Process, criteria and procedures

Scope of the review. The review focuses on the process from initiation to completion of the creation of new independent ventures (Davidsson, 2016; McMullen & Dimov, 2013; Shane & Venkataraman, 2000; Wiklund et al., 2011). In order to attain to the greatest extent possible a standardized, reproducible and transparent investigation, limit subjectivity and avoid conscious
or unconscious bias, a systematic approach was applied to article search, inclusion, and coding (Rauch, 2019; Tranfield et al., 2003).

**Getting started.** Prior to formally stating inclusion and exclusion criteria and developing search terms, the authors familiarized themselves with the topic and research area to gain a better understanding of terminologies and phrases used. It was found that there is no common, accepted terminology in research on the venture creation process. Further challenges arose since only few studies put their focus unambiguously, completely, or exclusively within the chosen process demarcations. This necessitated a highly iterative process to arrive at satisfactory solutions (Tranfield et al., 2003).

**Specification of inclusion and exclusion criteria.** To be included, articles need to have nontrivial coverage of significant part(s) of the process from initiation to completion of new venture creation. Based on the highly iterative procedure when preparing review and article search, inclusion and exclusion criteria were developed to delineate the scope of articles to be included. The resulting inclusion and exclusion criteria are specified in Table A1.

**Specification of search terms.** Different search terms and combinations thereof were trialed and tested, eventually arriving at comprehensive sets of search criteria to ensure the inclusion of relevant articles. These search terms were developed iteratively with cross-checking against a set of articles that were known to qualify. In principle, the syntax for search includes different terms for capturing the entity of a new venture and its emergence in combination with terms capturing processual or temporal aspects. The full set of search criteria used are shown in Table A2. The execution of the search focused on title and abstract of articles. Despite the broad set of search terms and the high rate of later exclusion that this necessitates, it is unavoidable that some relevant articles will not be included in the systematic review because they do not use language identifying them as process research in title or abstract. It is largely for this reason that we say in the main body text that we can only aspire to make our review one relevant portrayal of the NVC process literature and not the unquestionable account of it.

**Journal selection.** In order to ensure inclusion of validated research and the most influential articles, the search process targeted on leading, peer reviewed journals in entrepreneurship, innovation, management/organization, and international business (cf. Keupp & Gassmann, 2009; Podsakoff et al., 2005; Terjesen et al., 2016). We used journal quality assessments provided by the Academic Journal Guide (AJG) 2018 (sometimes referred to as ‘the ABS list’). We included management/organization and international business journals ranked 4*, the top category (we added Journal of Management Studies, ranked 4, for its known coverage of entrepreneurship research). Selection was more inclusive for entrepreneurship and innovation journals – covering rank 3 and above – since for these the focal phenomenon is of core interest. This resulted in including 21 journals (see Table A3). During the research and manuscript development process the search was updated so that the final review covers articles published between 1 January 1990 and 30 June 2019, thereby assuring inclusion both of the most recent and potentially important early works. The search engine ProQuest was used to execute the systematic search; supplemented by a Scopus search for specific journals and time periods that turned out not to be indexed by ProQuest\(^1\). In total, the database search yielded 1,472 results matching the search syntax\(^2\).
**Table A1. Specification of inclusion and exclusion criteria for search process**

**Systematic review: Inclusion and exclusion criteria**

**Inclusion criteria:**
A. The research needs to focus on or significantly include interest in independent businesses AND
B. The research must be fully or at least partly set during the process of creation of such businesses (from inception = intention + action, to completion = termination or “becoming up-and-running”) AND
C. The process itself or a subprocess thereof (learning, resource acquisition, network development etc...) needs to be a significant focus of the research in terms of sequence, ordering, accumulation or other patterns over time so that
1. The research aims to describe the process OR
2. Process characteristics are used as “IV” (explanation of outcomes) OR
3. Process characteristics are used as “DV” (something else shapes the process) OR
D. The article focusses on how to study venture creation processes or subprocesses.

**Exclusion criteria:**
Articles were excluded from our sample if:
- They are clearly about ongoing organizations: corporate entrepreneurship; family business or growth/performance of established SMEs
- They are clearly about aggregate level issues rather than the processes of creation of individual ventures: industry, region, nation, ecosystem, cluster as level of analysis
- The topic is otherwise clearly off our focus, such as career choice, education, funding without creation process focus
- They clearly focus on comparative characteristics of entities (individuals, teams, businesses) without process focus
- They clearly stop before the process as defined starts: intention, motivation, opportunity recognition as DV They are review articles of something different or much broader than new venture creation
- They are about concept definition or measurement not central to processes (definition of process initiation/ completion would not be excluded)
- They are editorials, teaching cases, dialogue pieces or other material that are not original research articles

**Inclusion and exclusion of search results.** In a first round of exclusion, both authors independently inspected titles and abstracts of the aggregated 1,472 search results and suggested exclusion or retention for full text assessment. This was an iterative process comparing independent decisions and, in case of doubt or disagreement, retaining articles for full text inspection. Title and abstract based elimination led to a sample of 420 articles. The remaining articles and their full texts were saved in a data base and, again independently, inspected by both authors. Inclusion and exclusion based on full text was an iterative process during which the authors discussed their respective assessments and, in case of disagreement, re-inspected the articles. At the end of the process, the authors decided to include 166 articles to be coded, 50 of which were eventually excluded due to insufficient process coverage (see below).
Table A2. Sets of search terms used

| 1 | 2 | 3 |
|---|---|---|
| 1. Either title or abstract includes at least one of the terms in column 2 in combination with at least one of the terms in column 3 | Entrepreneurial; "["venture" or "business" or "firm" or "organization"] creation"; "start-up[s]"; "new firm[s]"; "new organization[s]"; "new venture[s]"; "new business[es]"; "["venture" or "business" or "firm" or "organization algebra"] founding[s]"; "opportunity ["identification or ‘creation’ or ‘discovery’ or ‘development’"]" | Process[es]; evolution; temporal; sequence[s]; stages; phases; "over time"; "across time" |
| 2. OR either title or abstract includes at least one of the terms in column 2 in combination with at least one of the terms in column 3 | "entrepreneur[s]"; "entrepreneurial"; "entrepreneurship" | "process theory"; "process model"; "process framework" |
| 3. OR either title or abstract includes at least one of the phrases terms in column 2 (e.g., ‘venture gestation’; ‘organizational emergence’; ‘firm formation’) | "firm" or "venture" or "business" gestation; "firm" or "venture" or "organizational" emergence; "firm" or "venture" or "business" or "opportunity" formation |

Table A3. Academic journals included in the search process

| Target journals for systematic search |
|---|
| **Entrepreneurship:** Journal of Business Venturing (JBV), Entrepreneurship Theory & Practice (ETP), Journal of Small Business Management (JSBM), Family Business Review (FBR), Entrepreneurship & Regional Development (ERD), Strategic Entrepreneurship Journal (SEJ), Small Business Economics (SBEJ), International Small Business Journal (ISBJ) |
| **Management/Organization:** Academy of Management Journal (AMJ), Academy of Management Review (AMR), Administrative Science Quarterly (ASQ), Journal of Management Studies (JMS), Management Science (MS), Organization Science (OS), Strategic Management Journal (SMJ), Journal of Management (JOM) |
| **Innovation:** Research Policy (RP), Journal of Product Innovation Management (JPM), Technovation, R&D Management (RDM) |
| **International Business:** Journal of International Business Studies (JIBS) |

Coding and further reduction of the sample. Comprehensive coding categories and criteria were developed to classify the articles in the sample and to extract relevant quantitative and qualitative information critical for the research objective. Codes and definitions thereof were refined after the authors had coded a small subset of articles as a trial. Throughout the iterative research and coding process additional coding categories were added. The authors independently coded the articles for all process related and other coding that leaves room for judgement (e.g. ‘core’ process versus ‘subprocess’ research). The coding was then compared and every disagreement or doubt was discussed to arrive at the final coding for the articles in the sample. Due to the large number of articles and extensive coding categories we relied on a single coder (alternating) for straightforward classifications (e.g. empirical versus non empirical; sample size etc.). While only
a fraction of the total coding is explicitly used in this manuscript, almost all of the coding has in one way or the other informed its preparation. During the extensive coding process, 50 articles emerged as not having the new venture creation process or a subprocess thereof as a main emphasis and were not further used for our review, leaving a final sample of 116 articles. These articles are listed in Table A4 below.

Table A4. Articles included in the systematic review (see Table A3 for journal acronyms)

| Article Details | Journal Details |
|-----------------|-----------------|
| * Ahsan et al., 2018 (JSBM) |  |
| Aldrich & Cliff, 2003 (JBV) |  |
| Aldrich & Martinez, 2001 (ETP) |  |
| Alsos & Kolvereid, 1998 (ETP) |  |
| * Alvarez & Barney, 2007 (SEJ) |  |
| Alvarez et al., 2013 (OS) |  |
| * Ambos & Birklinshaw, 2010 (OS) |  |
| Aridichvili et al., 2003 (JBV) |  |
| Barreto, 2012 (JMS) |  |
| * Baucus & Human, 1994 (ETP) |  |
| Bhave, 1994 (JBV) |  |
| Bird, 1992 (ETP) |  |
| # Bird & Brush, 2002 (ETP) |  |
| Brockner et al., 2004 (JBV) |  |
| Butler & Hansen 1991 (ERD) |  |
| # Bygrave & Hofer, 1991 (ETP) |  |
| # Capelleras et al., 2010 (JSBM) |  |
| Carter et al., 2019 (ISBJ) |  |
| * Colellaert et al., 2016 (JSBM) |  |
| Corbett, 2005 (ETP) |  |
| # Croce et al., 2018 (JSBM) |  |
| Davidsson & Gordon, 2012 (SBE) |  |
| # Davidsson & Gordon, 2016 (ETP) |  |
| # Davidsson & Honig, 2003 (JBV) |  |
| # Davidsson et al., 2006 (ISBJ) |  |
| * Delmar & Shane, 2004 (JBV) |  |
| Domicone et al., 1993 (ERD) |  |
| Dufays & Huybrechts, 2016 (JS) |  |
| # Dutta & Crossan, 2005 (ETP) |  |
| # Eckhardt et al., 2006 (SBE) |  |
| * Engel et al, 2017 (JBV) |  |
| Fiet et al., 2005 (SBE) |  |
| Forbes et al., 2006 (ETP) |  |
| Gans et al., 2019 (SMJ) |  |
| Gartner, 1993 (JBV) |  |
| # Gielnik et al., 2014 (JBV) |  |
| # Gielnik et al., 2015 (AMJ) |  |
| # Gielnik et al., 2017 (JBV) |  |
| Griffin-EL & Olabisi, 2018 (JMS) |  |
| Grimes, 2018 (AMJ) |  |
| # Gruber et al., 2008 (MS) |  |
| # Hansen & Bird, 1997 (ETP) |  |
| # Haugh, 2007 (ETP) |  |
| Hayter, 2016 (RP) |  |
| # Hechavarria et al., 2016 (SBE) |  |
| # Held et al., 2018 (SBE) |  |
| Hofer & Bygrave, 1992 (ETP) |  |
| # Hopp & Greene, 2018 (JSBM) |  |
| # Hopp & Sonderregger, 2015 (SBE) |  |
| Hoyte et al., 2019 (ISBJ) |  |
| * Hung, 2006 (ISBJ) |  |
| * Jiang & Tornikoski, 2019 (JBV) |  |
| * Jones & Li, 2017 (ERD) |  |
| Kamm & Nurick, 1993 (ETP) |  |
| # Kaulio, 2003 (RDM) |  |
| # Kim et al., 2015 (JBV) |  |
| # Klyver et al., 2018 (SBE) |  |
| Larson & Starr, 1993 (ETP) |  |
| Learned, 1992 (ETP) |  |
| Lehner, 2014 (ERD) |  |
| Leyden & Link, 2015 (SBE) |  |
| # Liao & Gartner, 2006 (SBE) |  |
| # Lichtenstein et al., 2007 (JBV) |  |
| # Lichtenstein et al., 2006 (SBE) |  |
| # Manolova et al., 2012 (SBE) |  |
| # Martina, 2019 (SBE) |  |
| # Mauer et al., 2018 (SEJ) |  |
| * Maurer & Ebers, 2006 (ASQ) |  |
| # McCann & Vroom, 2015 (ISBJ) |  |
| * McKelvey, 2004 (JBV) |  |
| # McMullen & Dimov, 2013 (JMS) |  |
| # McMullen & Kier, 2016 (JBV) |  |
| * Miozzo & DiVito, 2020 (SBE) |  |
| * Moroz & Hindle, 2012 (ETP) |  |
| * Morris et al., 2012 (ETP) |  |
| Muñoz & Dimov, 2015 (JBV) |  |
| * Muñoz et al., 2018 (JBV) |  |
| # Newbert, 2005 (JSBM) |  |
| # Newbert & Tornikoski, 2012 (SBE) |  |
| # Newbert et al., 2013 (JBV) |  |
| # O’Neil & Ubasaran, 2016 (JBV) |  |
| # Packard et al., 2017 (OS) |  |
| # Perrini et al., 2010 (ERD) |  |
| Powell & Baker, 2017 (AMJ) |  |
| Pryor et al., 2016 (SEJ) |  |
| # Rasmussen, 2011 (ISBJ) |  |
| # Rasmussen et al., 2011 (JBV) |  |
| Rasmussen et al., 2014 (RP) |  |
| Rasmussen et al., 2015 (ERD) |  |
| * Reynolds et al., 2015 (SEJ) |  |
| Reynolds, 2011 (JSBM) |  |
| Reynolds & Miller, 1992 (JBV) |  |
| # Samuelsson & Davidsson, 2009 (SBE) |  |
| Sarason et al., 2006 (JBV) |  |
| Sargent & Young, 1991 (ERD) |  |
| # Schmitt et al., 2018 (ETP) |  |
| * Selden & Fletcher, 2015 (JBV) |  |
| Shah & Tripsas, 2007 (SEJ) |  |
| Sklaveniti, 2017 (ISBJ) |  |
| Snihur et al., 2017 (SEJ) |  |
| # Starr & Fondas, 1992 (ETP) |  |
| # Steyaert, 2007 (ERD) |  |
| Swail & Marlow, 2018 (ERD) |  |
| # Tian et al., 2019 (JSBM) |  |
| Tocher et al., 2015 (SEJ) |  |
| Tornikoski & Newbert, 2007 (JBV) |  |
| # Uy et al., 2015 (JBV) |  |
| van Gelderen et al., 2005 (SBE) |  |
| VanderWerf, 1993 (ETP) |  |
| # Woo et al., 2019 (JSBM) |  |
| # Wood & McKinley, 2010 (SEJ) |  |
| Yessoufou et al., 2018 (ERD) |  |
| Yli-Kauhaluoma, 2009 (ISBJ) |  |
| Yusuf, 2012 (SBE) |  |

Note. # = article with hypotheses; * = article included in ‘deeply process engaged’ subset (see tables 5 & 7)
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Notes

1. While one article has since been given a 2020 publication date and a few more may have final publication dates in the second half of 2019, all articles that were either included or excluded after examination were published at least as ‘online first’ by 30 June 2019.
2. Simple ‘search and note’ for defined terms as in Tables 2 and 6 were undertaken with a single coder but involved agreed procedures for undertaking the search and coding.
3. See Table A4. Some would likely argue that the very idea of hypotheses relating independent and dependent variables is antithetical to process research. As explained in the Introduction, we apply a broader view on process research and sympathize with Pettigrew’s (1997, p. 340; 2012, p. 1309) suggestion that to be meaningful, process insights must ultimately explain something. In quantitative research, this means explaining variance in outcomes or in the probability of occurrence of certain types of transitions, events, or process patterns.
4. Social reinforcement can be processual was not conceptualized or operationalized in that manner in this case.
5. However, reaching a criterion for completion of the NVC process is treated as Outcome, not Process pattern.
6. Although the selection of authors and terms can be debated, the procedure is replicable and results can thus be checked as well as compared with results obtained with other sets of authors and terms, in line with the transparency required of systematic reviewing.
7. Likewise, one of Gersick’s well-cited process works is on new venture development (Gersick, 1994).
8. In addition, we noted during coding that Sarasvathy’s works on effectuation were cited a nonnegligible number of times without use of effectuation terminology in the main body text as required in Table 6.
9. It should be noted, however, that this is in part due to some of the references and terms in Table 6 being unavailable or less known early in our review period. Accordingly, despite being highly processual/temporal, Bird (1992) and Bhave (1994) fail to meet our criteria for inclusion in the ‘deeply engaged’ set.
10. In addition, McMullen and Kier (2016), coded as nonempirical, can alternatively be seen as an empirical paper based on archival data on a single case. Lichtenstein et al. (2006) is also based on a single case but is coded as mixed methods as it collects and analyzes both qualitative and quantitative case data.
11. For example, in PSED-type research, about half of the ‘gestation activities’ ever recorded were completed at the time of the first interview.

12. If sampling is based on individuals, they also tend to oversample ventures started by teams (see Davidsson, 2016; Yang & Aldrich, 2012, p. 482).

13. The supplementary Scopus search covered Entrepreneurship & Regional Development for the time period 1990-1999; Family Business Review (2009-2019); International Small Business Journal (1990-1992); Journal of Business Venturing (2016-2019); Small Business Economics (1990-1991), and Technovation (2018-2019).

14. The initial ProQuest search covered the period from 1 January 1990 until 30 March 2018; a later update covers the period from 1 April 2018 to 30 June 2019. Scopus journal coverage and time periods as reported in the previous footnote. We report numbers aggregated from all search processes in the manuscript. We cannot rule out minor inaccuracies in the reported number of overall database search results due to possible minimal temporal overlaps, ‘online first’ publications etc. However, these were cleared throughout the inclusion and exclusion process.

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