



Paradoxical Execution for New Ventures' Scalability: Evidence from Y Combinator

Michele Pinelli
Free University of Bozen, Italy
Luca Pistilli
University College Dublin, Ireland
Alessio Cozzolino
University College Dublin, Ireland

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ABSTRACT

Accelerators have emerged as important organizational sponsors capable of hastening new ventures' development by helping founders acquire entrepreneurial capabilities. Research has provided evidence that accelerated ventures, on average, develop more rapidly, attract more capital, have more employees, and receive higher evaluations. Yet, we know little about how accelerators foster new ventures' scalability. To develop theoretical insights that might help fill this gap, we conduct an inductive case study of Y Combinator (YC), the first modern accelerator that specifically focuses on helping ventures achieve a large scale. Through a unique combination of 64 video interviews and 7,283 pages of archival material, we find that the strategic goals and methodological guidelines of YC's acceleration program pressure founders to pursue conflicting priorities simultaneously, thus forming a pattern that we termed Paradoxical Execution. We reveal that those paradoxes must be addressed in a simultaneous rather than sequential way, and for this reason accelerators urge startups to develop a paradoxical mindset. Hence, we unveil how contrasts and paradoxes are likely to manifest from the very early stage of new ventures' life cycle, contrariwise to what existing literature suggests. Altogether, our findings contribute to the literature on entrepreneurial ecosystems, paradox theory, and organizational scaling.

INTRODUCTION

"You know you really built something amazing if you hit the 'scale' problem" (Reid Hoffman)

Organizational scaling is a stage of intense organizational expansion aimed to support the adoption of aggressive strategies to grow a company's customer base and to realize the profitability benefits of economies of scale (Coviello, 2019; Gulati and DeSantola, 2017;

Hellman and Kavadias, 2016; Sullivan, 2016) that requires new ventures to undertake many activities and deal with several internal as external challenges (DeSantola and Gulati, 2017; Gulati and DeSantola, 2017; Sullivan, 2016; Rasmussen et al., 2018). To successfully overcome these challenges, ventures can benefit from entrepreneurial ecosystems (Autio et al., 2018). Within those latter, in fact, entrepreneurial supporting organizations (ESO, from now on) (e.g., accelerators, incubators, co-working spaces and maker spaces) provide services and resources that facilitate the establishment, survival and long-term growth of new ventures (Amezcuca et al., 2020; Bergman and McMullen, 2020; Ratinho et al., 2020).

Quite surprisingly, we know little about how ESO may foster ventures' scalability and prepare founders to successfully manage the challenges of scaling. In fact, while fostering the scaling of new ventures is deemed a paramount objective of ESO (Autio et al., 2018), existing literature disproportionately focuses on the provision of financial resources to trigger and nurture the scaling process. Yet, the support of ESO is most intense during the startup stage (Autio et al., 2018), so it is likely that these actors do something to help founders design scalable ventures from the early stages of their life cycle.

To shed some light on this aspect, this study considers Y Combinator (YC, from now on), a leading accelerator headquartered in the Silicon Valley, with the aim of investigating the architectural knowledge that relates to the generic business process of scalable ventures' design. This latter, in fact, is considered the primary mechanism through which entrepreneurial ecosystems foster new ventures' development (Autio et al., 2018). Accelerators spread and help founders acquire such knowledge through the entrepreneurial training that they provide in their acceleration programs, which has been found to positively affect ventures' development (Cohen et al., 2019a; Gonzalez-Uribe and Leatherbee 2018; Hallen et al., 2020, Yu, 2020). Ventures'

development in such dimensions, however, does not necessarily imply that a venture is scalable (Coviello, 2019; Hellman and Kavadias, 2016) because scalability requires ambitious growth intentions, a successfully commercialized product and, most importantly, the ability to leverage economies of scale to increase profitability with scale (Coviello, 2019; Gulati and DeSantola, 2017; Hellman and Kavadias, 2016; Sullivan, 2016). In other words, while we know that accelerators' entrepreneurial training fosters new ventures' development through the diffusion and absorption of architectural knowledge about business model innovation (Autio et al., 2018; Goswami et al., 2018), we do not know much about how this training helps founders build companies that are scalable by spreading architectural knowledge about the generic business process of scalable ventures' design. As a result, we are left wondering: *how does accelerators' entrepreneurial training prepare founders to build scalable companies and deal with the challenges of scaling?*

To answer this question, we rely on a case study of YC, the first – and possibly most successful – modern accelerator that supported the development of companies such as Airbnb, Coinbase, DoorDash, Dropbox, Stripe and Twitch. We consider YC as an ideal empirical context to explore our research question because its approach to ventures' development focuses exactly on the drivers of scalability. Since an accelerator's objectives affect the structure, contents, and design of its program (Cohen et al., 2019a, 2019b; Chan et al 2020), an examination of YC's entrepreneurial training can be uniquely helpful to understand how new ventures can be designed for scalability since the startup stage. Our analysis builds on 64 among interviews, talks and lectures (total duration: 46h and 22m) held by 46 YC partners, YC alumni, and other members of the YC entrepreneurial network. In addition, we gathered 3,467 single unique contributions of

archival material (7,283 pages), which includes 352 blog posts (850 pages), 1,226 newspapers' articles (3,313 pages) and 1,989 specialized magazines' articles (3,120 pages).

Overall, our findings reveal that building scalable companies requires founders to pursue several conflicting priorities and that entrepreneurial training helps them identify and overcome fundamental tensions through a set of prescriptions that we collectively label Paradoxical Execution. In particular, the strategic priorities and operational guidelines at the core of YC's entrepreneurial training are often counterintuitive and seemingly contrasting, which results in four apparent paradoxes (*go fast, but wait; get big, act small; persist, but let go; experiment, but accept indeterminateness*) pertaining to four core aggregate dimensions (*Time Mastery, Progressive Scaling, Balanced Persistence, and Tentative Experimentation*). Building on the core caveats of the paradox theory (Smith and Lewis, 2011), we propose that Paradoxical Execution fosters ventures' scalability because it helps founders understand how to pursue conflicting priorities and respond to conflicting demands simultaneously, as opposed to choosing among them. Hence, accelerators require new ventures to develop a paradoxical mindset (Miron-Spektor et al., 2018) to successfully address the abundant paradoxes faced. Our study contributes to research on entrepreneurial ecosystems (e.g., Autio et al., 2018) and ESO (e.g., Bergamn and McMullen, 2021; Goswami et al., 2018) by shedding light on how those latter support startups not only by facilitating access to financial resources during the scaling stage, but also through nurturing fundamental capabilities and skills related to how scalable organizations needed to be designed from the startup stage. In so doing, we also show that ESO in general – and accelerators in particular – provide entrepreneurs with support on a key dimension of ventures' development and performance, i.e. their scalability.

Second, by interpreting our findings from a paradox perspective, we provide a strong theoretical basis to explain why Paradoxical Execution fosters ventures' scalability, which is especially important for the development of a literature stream that is largely practitioner-based (Autio et al., 2018) and under-theorized (Bergman and McMullen, 2021). In a nutshell, we reveal that a core accelerators' goal is to help new ventures' in developing a paradoxical mindset (Miron-Spektor et al., 2018) at the organizational level. While our findings largely confirm and support a key caveat of the paradox theory, i.e., that paradoxes should be addressed simultaneously rather than consecutively (e.g., Smith and Lewis, 2011), we argue while firms embody such contradictions from the very infant stages of their life, and not only when they mature from entrepreneurial to more established stages, as mostly claimed by existing literature (e.g., Fiol, 2002). Finally, this work also contributes to research on organizational scaling (e.g., Rao and Sutton, 2014) by showing that founders who aim to scale their companies face unique and significant scaling-related challenges even before the beginning of the scaling process itself. Our findings also indicate that architectural knowledge, which is not specific to any industry, can significantly help founders overcome these challenges, whereas past research found that domain-specific knowledge – such as industry-level recipes (Monaghan and Tippmann, 2018) – can help navigate through the challenges of scaling. While we cannot neglect the existence of across industries differences in that regard, we show that scaling is an organizational outcome that can be facilitated by actions undertaken in the startup stage, regardless of the specific sector.

LITERATURE REVIEW

Scaleups, scalability and scaling

Extant research on organizational scaling spun off from the literature on high growth firms to distinguish scaling firms (or scaleups) from high-growth firms (e.g., Coviello, 2019). While

high-growth firms are defined as “*firms growing at or above a particular pace*” within a yearly or multi-year time window (Coad et al., 2014 p. 95), scholars largely agree that a shared definition of ‘scaleup’ has not yet emerged. However, several authors offer insights that help understand how scaleups differ from high-growth firms. Durufle et al. (2017) describe scaleups as companies experiencing a stage of fast sales growth after they found a successful product and a segment in the exploratory startup stage. Similarly, Hellmann and Kavadias (2016) intend scaleups as companies in the process of delivering a proven concept to a wider audience through increased market penetration, internationalization and a dramatic expansion of the scale of business operations. As per the pace of such growth, some authors remark that it should be fast to capture first-mover advantages that allow both to defend against mounting competition and to achieve critical mass (Durufle et al., 2017; Sullivan, 2016). These insights resonate with works on high-growth firms that point to swift action as an important predictor of growth (Baum and Bird, 2010; Rasmussen et al., 2018). Taken together, these descriptions highlight that scaleups have started to successfully commercialize a product, have a growing customer base that drives revenue growth – both in new and already penetrated markets – and are rapidly expanding their operations to capture first-mover advantages. Importantly, however, some authors underline that companies need to be able to leverage economies of scale to be scalable (Coviello, 2019; Monaghan et al., 2020). The potential to take advantage of economies of scale thus emerges as a key element to distinguish between growing and scaling companies: scaling implies that economies of scale allow “*to grow revenues faster than costs*” (Coviello, 2019; p. 5), thus leading to increased profitability. As a result, a mere growth of the company’s size in terms of revenues, assets, or employees would not imply scaling in absence of increasing levels of profitability. As such, companies with low customer acquisition costs, low variable costs, or that

do not need large investments to expand their operations are more ‘scalable’ (Coviello, 2019; Monaghan et al., 2020; Sullivan, 2016). Hence, software companies or the ones adopting digital business models tend to be highly scalable (Monaghan et al., 2020; Sullivan, 2016). Conversely, high-growth firms are present in all industries, low-tech and high-tech alike, because technology and products are not deemed as major determining factors for high growth (Demir et al. 2019). In essence, while growth is not a prerogative of digitalized companies, these might be the most likely to be scalable. Lastly, another fundamental aspect of scaleups is the inner willingness to grow. As remarked by Sullivan (2016), scaling companies have a peculiar character, characterized by an extreme focus on growth. Conversely, a lack of will and ambition to grow significantly constrain new ventures’ scalability (Hellman and Kavadias, 2016). Ambitious growth intentions, consequently, are considered a necessary condition for growth (Rasmussen et al., 2018). In fact, on the one hand, growth objectives provide the criteria to make critical strategic decisions and to resolve trade-offs caused by conflicting demands (Rasmussen et al., 2018). On the other hand, together with an inspiring vision of significant employment and wealth creation (Baum and Bird, 2010), ambitious growth intentions also help people cope with the often chaotic internal environment of a scaling organization (Kroll, Walters, and Le 2007; Durufle et al., 2017). In sum, we consider a company as scalable if it has ambitious growth objectives, the potential for growing profitability due to economies of scale and an already successfully commercialized product. Further, we intend a scaling company as a scalable company that has entered the scaling stage, thus adopting aggressive growth strategies aimed at rapidly growing its customer base – either domestically or internationally – and that is expanding its business operations to support such growth strategies. Coherently, we intend scaleups as scalable companies that are scaling.

Scaling and ESO's challenges

Due to their intense expansion, scaling companies are subject to significant pressure. In fact, problems that typically affect entrepreneurial ventures, such as lack of experience and legitimacy, tend to be amplified by growth (Baum and Bird, 2010; Demir et al 2017). As a result, scaling companies must deal with unique internal and external challenges (Rasmussen et al 2018) that are neither encountered by large corporations (DeSantola and Gulati, 2017) nor by companies that are growing at a slower pace (Demir et al 2017).

Internally, intense growth causes companies to face increasing organizational complexity (Demir, 2017; DeSantola and Gulati, 2017), which requires undergoing a dramatic transformation of the company in terms of structure, design, human resources and locations (Coviello, 2019) across various parts of the organization (Demir, 2017; Sullivan, 2016). As such, scaling companies cannot just replicate established practices and increase their efficiency (Gulati and DeSantola, 2017), but they need to define additional strategic priorities (Demir et al 2017: Sullivan, 2016), add new organizational functions (DeSantola and Gulati, 2017: Sullivan, 2016), and find the right people to occupy new managerial and operational positions (Demir et al 2017). This process becomes even more difficult due to the necessity to replace or supervise employees that helped build the organization in the first place (DeSantola and Gulati, 2017) and due to the necessity to move away from the experimental and improvisational mindset that characterized the startup stage in favor of a more formalized approach to strategic planning (Gulati and DeSantola, 2017; Rasmussen et al., 2018). Externally, scaling companies face increased market complexity due to growing competition and expansion into new markets (Sullivan, 2016), which requires both refining existing products and developing new ones (Gulati and DeSantola, 2017). Such tasks are especially difficult due to little market information and poorly developed

marketing analysis process (Baum and Bird, 2010). In addition, external complexity further complicates internal organizing, as the organizational structure must continuously adapt to environmental changes (Demir et al 2017). Finally, as both organizational and commercial expansions require significant investments, attracting the necessary financial resources becomes an additional challenging and necessary priority (DeSantola and Gulati, 2017). To successfully deal with those challenges, scaling companies may take advantage of the support of ESOs and entrepreneurial ecosystems. Entrepreneurial ecosystems are particular types of clusters that leverage digital affordances to support the creation and scale-up of new ventures by organizing and facilitating voluntary spillovers of architectural knowledge about business model innovation (Autio et al., 2018). Within entrepreneurial ecosystems, horizontally networked companies, thus, benefit from flows of knowledge about a generic business process – i.e., effective business model innovation and entrepreneurial startup/ scaleup – essential to compete against incumbents outside the cluster (Autio et al., 2018). In that regard, ESOs – e.g., accelerators, incubators, co-working spaces and maker spaces – play a primary role. These organizations, in fact, aim to foster entrepreneurial activity and provide entrepreneurs with support (Bergman and McMullen, 2020), intended as resources and activities that shield and empower new ventures (Amezcuca et al., 2020) thus facilitating their establishment, survival, and long-term growth (Ratinho et al., 2020). In summary, theoretical arguments and empirical findings point to knowledge and know-how acquired through acceleration programs as key drivers of performance improvements for accelerated companies. As previously remarked, however, entrepreneurial ecosystems are organized to foster not only the establishment but also the scaling of new ventures. As fundamental actors for the diffusion and absorption of architectural knowledge about business model innovation and venture scaling, it is reasonable to expect that accelerators spread

knowledge that improves the scalability potential of new ventures. Yet, by mostly focusing on dimensions such as funding, employee headcount and web traffic, scholars have limited their attention to measures that only correlate – but do not imply – scalability and to the startup – rather than the scaleup – stage. As a result, we lack theoretical insights on how knowledge acquired from accelerators’ entrepreneurial training fosters new ventures’ scalability. Hence, we ask: *How does accelerators’ entrepreneurial training prepare founders to build scalable companies and deal with the challenges of scaling?*

METHODS

To answer our research question, we aim to develop theoretical insights that may help explain how new ventures’ scalability is fostered by entrepreneurial education acquired through acceleration programs. We thus conducted an inductive analysis on a mixture of data and adopted a grounded theory approach. This method is particularly appropriate for generating or elaborating theory when a phenomenon is not well understood (Strauss and Corbin, 1997).

Data collection

We focused our data collection on YC’s practices, insights and advice. Table 1 presents both descriptive statistics about the data that we gathered and analyzed, and how those have been used for our subsequent data analysis.

Our dataset creation followed three core steps. First, to develop a deep understanding of the context and get a more external perspective of the accelerator, we retrieved articles from global newspapers and business magazines, using “Y Combinator” as a keyword. The use of newspaper articles in conjunction with other sources is considered a meaningful way to add robustness to findings and it is a widely used procedure in top-tier qualitative studies (e.g., Berends et al., 2011; McDonnell and King, 2013). Overall, we collected 1,226 newspaper articles (from e.g.,

The Financial Times, The Wall Street Journal, WSJ Pro Venture Capital, The Economic Times), and 1,989 articles published in specialized magazines (e.g., TechCrunch and Business Insider). The 3,215 newspaper and business magazine articles had hence a double purpose: this material not only helped us gain additional insights into our focal actors (accelerators), but it also facilitated the reduction of any potential bias related to single sources and the inner enthusiasm of informants. Second, we retrieved and transcribed 64 pre-recorded video interviews (10) as well as talks and lectures (54) given by YC's executives and alumni as well as by investors, managers, and entrepreneurs connected to the YC's community between 2014 and 2022. The talks and interviews were given as part of various collections of YC's educational material, such as Startup School (26), podcasts (5), and the Scaleup Offsite (4), as part of university courses (26) or during various events (3). Such audio-visual material represented the core informative material for this study, allowing us to capture tones, inflections, and emotions that could not have been captured otherwise (Elsbach and Kramer, 2003; Irvine et al., 2013). As we detail in Table 2, 44 of such videos cover one or more specific topics (e.g., customer development, fundraising, product development) whereas the remaining 20 encompass a variety of topics. We categorized our video material by analysing the related full transcripts and identifying the most recurrent words. Then, we clustered those terms into core representative themes, following the principles of qualitative content analysis (Banks et al., 2016; Hsieh and Shannon, 2005). Third, we collected publicly available material on YC, which led us to acquire a set of 352 blog articles (retrieved from YC's and founders' websites); this material allowed us to further increase the richness, robustness, and validity of our findings. We interrupted our data collection process when we saw that new data was producing only a little new information and the redundancy rate was substantial. In other terms, we reached "theoretical saturation" (Glaser & Strauss, 1967).

We constantly triangulated our data to intertwine theoretical insights, real-time archival material, and our embryonic process model (Santos and Eisenhardt, 2009). We also wrote memos, that is, analytical notes aimed at reporting the most relevant insights acquired during the research process (Strauss, 1987). Moreover, the use of video-based data in top-tier management journals (e.g., Gylfe et al., 2016) represents a growing trend, helping scholars to investigate different topics (e.g., Cunliffe, 2001; Sloan and Oliver, 2013).

- Insert Tables 1 and 2 about here –

Data analysis

Our empirical analysis includes four distinct yet intertwined phases, across which our collected data cover different purposes and gain heterogeneous relevance.

Phase 1. Familiarizing with the context of Y Combinator.

While we were familiar with the concept of accelerators in general and Y Combinator in particular, we decided to perform an extensive and preliminary immersion in the phenomenon of interest, before engaging in any formal finding-building activity. We decided to rely on different newspaper and specialized magazine articles in order to get a more objective and neutral perspective of Y Combinator, with the aim of eliminating (or, at least, mitigating) any preconception or prejudice we may have on the firm. We independently read all the 3,215 articles that we had collected. This phase lasted approximately 6 months and allowed us to gain a fine-grained view of YC (e.g., its core activities, programs and services, its core values, its organizational structure and its leaders, the characteristics of its community and alumni, its most successful alumni companies) through the opinions of actors both internal and external to YC (e.g., industry experts, journalists, entrepreneurs, investors). We did not follow any formalized process during this phase because our key goal was to familiarize ourselves with the object of

our investigation in preparation for the following phase (Stigliani and Ravasi, 2012). However, we did formally analyze this archival material in phase 4.

Phase 2. First-order Findings: The Scaling Operative Actions.

We then started an in-depth analysis of our audio-visual data to answer our theoretical question. Our goal was to identify patterns within the evolution of such questions, following the key procedural conventions for developing grounded theory (Strauss and Corbin, 1997). We generally followed the method described by Gioia et al. (2013), thus collecting and analyzing data, both independently and jointly, to discuss our respective interpretations. To start making sense out of our raw material, we relied on common procedures for grounded-theory building (Locke, 2001). Specifically, we separately performed an open coding of the full transcripts of the audio-visual material and blog articles, trying to find pieces of informative text that described the key prescriptions of YC's entrepreneurial training. After multiple reading iterations, we compared and contrasted the multiple codes that we had developed individually to validate our preliminary coding structure. Codes that resulted similar in essence among us, were synthesized in first-order findings. We resolved a few discordances (less than 10% of our codes) through a joint re-reading of the transcripts, collegial discussions, and eventual data re-coding, also through the support of the informative power of blog articles. For this specific phase, which lasted approximately 8 months, we relied on the transcripts of the audio-visual material as core data for the analysis, and we used blog articles to enrich and refine the interpretation of emerging categories. As mentioned, blog articles were revealed to be particularly useful when we were not in full accordance with the coding.

Phase 3. Second-order Findings: Key Paradoxes.

The third phase was initiated after the final refining of our first-order codes through additional analyses of the dataset and discussions of our interpretations. We thus attempted to aggregate the so-obtained first-order findings into more theoretical and generalizable second-order themes. At this point, we observed that a pattern of contrasts was emerging and was linking our theoretical constructs, which we thus grouped into four core aggregate dimensions. A constant triangulation with existing theory (e.g., Schad et al., 2016; Smith and Lewis, 2011) played a crucial role: in fact, our scope is to gradually move from purely empirical first-order concepts to more theoretical dimensions (Gioia et al, 2013). We approximately needed 4 months to clear this phase. In addition, it is worth mentioning that during the aggregation of first-order codes into second-order themes, we noticed that some of the first-order codes were falling somewhat in-between two different second-order themes. We interpreted these instances as links that were bridging across different themes and used that as an additional criterion to aggregate the latter into consistent higher-order dimensions. This step represents an incremental innovation of the standard Gioia methodology and goes in the direction suggested and encouraged by the same authors: “*we envision the approach as a ‘methodology,’ rather than a ‘method’—that is, we see it as a flexible orientation toward qualitative, inductive research that is open to innovation, rather than a ‘cookbook.’ For instance, each of the published studies over the past 20 years contains some sort of methodological innovation*” (Gioia et al., 2013, p26).

Phase 4. Data Sources Triangulation and the Process Model.

Before developing our process model, we wanted to ensure robustness through an analysis of the archival material (i.e., newspaper and specialized magazine articles). Based on our coding, we looked for concepts and narratives within the articles that resonated with our codes and themes.

When relevant topics were identified, we wrote memos, that is analytical notes aimed at reporting the most relevant insights acquired from data analysis (Strauss, 1987). We compared these memos with theory and previous findings, to check the robustness and unbiasedness of our research. In a few cases, this led to a minor revisioning of previously conceived first-order findings and second-order themes. Then, building on the second-order themes and aggregate dimensions, we developed a process model to generate theoretical knowledge (Corley & Gioia, 2011; Mantere & Ketokivi, 2013) about the contribution of accelerators' entrepreneurial training to ventures' scalability. To unveil the relationships among our second-order themes, we moved to axial coding (Strauss & Corbin, 1990:123). This last phase required 4 months.

To maximize the explanatory power and intuitiveness of our model, we represent it on top of a synthetic outline of the venture development process adopted by YC and that we have described in the previous sections. Overall, the multi-source dataset that we built for this study allowed us to uncover several connections among multiple second-order theoretical constructs, which contributes to developing a more holistic understanding of the focal phenomenon and to generating a dynamic explanation (e.g., Azoulay et al., 2010; Repping & Sterman, 2002).

FINDINGS

The Four Pillars of Scalability

This section describes the four key constructs of the emerged process model. It shows how building scalable ventures require founders to navigate through tensions and apparent paradoxes within the four aggregate dimensions. Figure 1 graphically represents our data structure, while Table A in the appendix includes relevant quotes that support our first-order findings.

- Insert Figure 1 about here -

Progressive scaling

Our data highlights that the new ventures accelerated at YC pursue growth relentlessly but with a lean organizational structure, through artisanal activities and few resources.

Purposeful hyper-growth. In line with YC's founder's belief that "Startup = Growth" (Graham, 2012), YC's entrepreneurial education sees continuous and exponential progress as the main objective of new ventures. As such, growth is seen as the fundamental mission:

*"My contrarian viewpoint, or whatever, is: if you are a startup, you shouldn't have a f*****g growth team [...]. Startups should not have growth teams. The whole company should be the growth team. The CEO should be the head of growth."* (Alex Schultz)

The emphasis on growth since the startup stage is instrumental in turning small, understaffed, and resource-poor new ventures into large and global companies, constantly move forward. The direction is indicated by a North Star, a carefully selected metric reflecting the value that the venture is creating. Due to the importance of retention for enlarging the customer base, such North Star is usually a measure of repeated purchases (e.g., recurring revenues) or repeated usage (e.g., active users). As per the pace at which ventures should travel towards the North Star, founders at YC are encouraged to pursue small and exponential improvements every one or two weeks. Setting growth objectives with these characteristics has several advantages: 1) making weekly small improvements provides a sense of progress and accomplishment; 2) small improvements are easier to make than big ones thus enhancing motivation; 3) the combination of small and frequent improvements allow to achieve large scale faster. Such an ambitious, and yet conservative, approach to growing the venture is not reflected just by this sequence of small exponential improvements that compound over time but also by parsimony both in the structure and in the management of the new venture.

Intentional smallness. As per the structure of the organization, parsimony is reflected in keeping costs – including management costs – at a minimum. Resources are generally very limited for startups, and so they must be used efficiently and effectively. Emphasis is put on minimizing the number of people working at the new venture. Founding teams should ideally consist of two or three people, and a group of five founders is considered risky. A downside of large founding teams is that conflicts tend to emerge. Similarly, it is also recommended to avoid hiring employees for as long as possible, as their salaries absorb a significant amount of cash. Such organizational parsimony is also reflected in the way people are encouraged to operate: they are requested to use few resources, given the new venture's small endowments. Frugality is considered a driver of creativity and novelty. Due to few available resources and thus the difficulty to outperform the competition by incumbents in all aspects, products should not be complete solutions but rather should have only essential new features:

“You want to start intentionally small. [...] you create a product that will slip in between the gaps of other existing products [...]. Maybe you are just starting a sliver of the use case and then you are going to expand out, but you intentionally start small because you will not be able to compete with an incumbent because the incumbent is going to always go for the full solution” (Aaron Levie)

Products with limited functionality help founders to focus on maximizing the product's performance just in one specific dimension. The product's performance in that specific dimension should be an order of magnitude better than the next available solution, so to compensate for the lack of features and performance in other aspects of the product. Such a high performance in one specific product dimension is supposed to drive adoption and traction.

Bounded problem solving. A fundamental assumption at YC is that new ventures' problem-solving capacity is limited. As such, founders need to accept that to solve only a few problems, leaving others unaddressed. This essentially refers to limited attention and managerial

capacity, which requires entrepreneurs to prioritize problems to be addressed, relying on their selective skills and capabilities. The criterion for selecting what problems deserve attention is their potential to threaten the continuity of operations and the venture's survival in the short-term. Similarly, also the solutions for these problems need not be oversized or too ambitious:

“A key theory around scaling is: first, doing things that don't scale across a set of different key places in the business, and then working out to how to get that part to scale.” (Reid Hoffman)

Optimization is considered a concern for those organizations that are already at scale. Before then, the operational approach to problem solving needs to be calibrated to an organizational context that – being small and with few resources – requires significant manual labor:

“Doing things that don't scale means doing something that is provocatively manual on your part, where you – the founder – do a thing personally and isn't counting on a lot of code-writing or scalable processes” (Dalton Caldwell)

The rationale for avoiding optimized and scalable processes is that the class of problems encountered by small ventures differs fundamentally from those of large companies that already operate “at scale”. As a result, investing resources (including time) from the beginning to design scalable processes would not be cost effective.

Time mastery

From our data, it is evident that the management of time covers a crucial role. In particular, two antithetical time-related pressures are simultaneously exerted on founders: the pressure to operate and progress rapidly through iteration cycles and the pressure to choose the right timing (and thus to wait) before scaling the company. Hence, selecting the right thing to do at the right time represents an essential capability for a founding team.

Impelling operational speed. An abundance of references in our dataset evokes a pervasive sense of urgency. In general, making decisions rapidly is key and so it is taking action fast. Conversely, procrastination and delayed or reactive decision-making are seen as flaws:

“You have to be decisive. The only way to make progress is making decisions. Procrastination is the devil in startups. So, no matter what you do, you gotta keep that ship moving” (Ron Conway)

Such a sense of urgency permeates two activities in particular: launching the product and progressing through iteration cycles. As per the former:

“The quote [...] that I will never leave down is that “if you are not embarrassed by your product release, you released too late”. The whole point of that quote is to say the importance of speed and the importance of time” (Reid Hoffman)

Here, the rationale for launching the product quickly does not relate so much to capturing a first-mover advantage or making revenues soon. Rather, it is motivated by a foundational assumption of the lean-startup approach shared by YC: it is not possible to figure out most of the unknowns that are relevant to a business without observing the actual consumption behavior of users. Thus, the sooner a product gets into the hands of the customers, the quicker entrepreneurs learn whether the product is delivering value. The heart of the matter is improving the product’s performance and developing knowledge about the market space as rapidly as possible through iteration cycles:

“The trick is not in being a genius and getting a 100% at choosing the right solution for the problem. The trick is how quickly you can cycle through solutions.” (Michael Seibel)

Urgency also emerges as one of the primary criteria for prioritization. With scarce resources, a new venture not only needs to move quickly but also focus on a subset of the problems. One of the criteria that has often come up in our data is the temporal manifestation of the problem. On the one hand, the focus should be on solving problems that are pressing in the present. On the

other hand, the pressure to solve problems quickly should not lead to jumping the gun and thus to solving problems ahead of time, which brings up the issue of timing.

Timed acceleration. Interestingly, our data reveals that speed does not apply to all dimensions of progress. While product development should happen as fast as possible, the moment to scale the organization should not happen in the short-term:

“We have a say at YC: don't peak in high school. If demo day is the best day in your startups, that is not a good sign. If you are peaking in the first year of your startup, not a good sign.” (Michael Seibel)

From our data, we found that all the activities that relate to scaling the organization (hiring, adding functions, building capacity, optimizing for profitability, etc.) are not supposed to take place before the new venture hits product-market fit (herein, PMF). As per YC's motto “*build something people want*”, the fundamental belief is that there is no point in building structure on a product that does not have enough traction:

“A great product is the secret to long-term growth hacking. You should get that right before you worry about anything else. It doesn't get easier to put off making a great product. If you try to build a growth machine before you have a product that some people really love, you are almost certainly going to waste your time.” (Sam Altman)

Scaling the organization seems to make sense only when the demand for the product is growing strongly and organically, as reflected by retained customers and customer acquisition through positive word of mouth. These two conditions, which mark the achievement of PMF (again, product-market fit), have three important consequences: 1) retention and virality are enlarging the customer base; 2) virality implies a low customer acquisition cost and increasing returns to scale; 3) a new venture with limited resources cannot fulfill indefinitely a growing number of orders, so that scaling the organization becomes necessary. As per the intensity of growth, the organization has to scale aggressively after PMF, for both strategic and economic reasons. From a strategic perspective, scale is what allows ventures to defend against the

competition that will be attracted by a growing market. From an economic perspective, scale allows for profitability optimization. On the one hand, in fact, before the operations are “at scale”, the actual cost structure of the business is unknown, which prevents optimizing for profit. On the other hand, an enlarged customer base that also comprises the early majority of customers – and not just the relatively price-insensitive early adopters – allows starting experimenting with different prices to figure out customers’ willingness to pay. As a result, scaling the customer base allows thinking more clearly in terms of margins, which is not possible before the product-market fit has been found.

Tentative experimentation

Our data shows that YC’s entrepreneurial training teaches founders to develop their businesses scientifically, by theorizing about markets, experimenting with product features, and making assessments based on empirical data. Entrepreneurship, however, is a context characterized by uncontrollable factors, which makes these activities necessary but not sufficient conditions for success or scaling.

Scientific approach. In line with lean-startup methodologies, the fundamental belief about new business development is that it is not possible to figure out in advance all the unknowns that are relevant to creating a new business. As such, business plans and ex-ante business modeling are considered unreliable, so that founders are encouraged to frame their venture projects as growth hypotheses:

“A startup idea is basically a hypothesis. [...] it is a hypothesis about why a company could grow quickly” (Kevin Hale)

The sensibility of those hypotheses rests on a few premises. First, the existence of a problem that current market offerings are either not solving or themselves are creating. Second, many people are or will be facing this problem. Third, not solving the problem is costly for these people, so

that they will be willing to pay to have it solved. As a result, the assumption is that a solution to such a kind of problem could be the basis for building a large profitable business in a relatively short time span¹. A founder's job is to design and run experiments that may provide evidence that their hypotheses are correct. The founders' solution to the problem – the product – is their experiment. In addition, the founders' hypothesis must rest on a theory: an original insight they have about the market that explains and justifies the sensitivity of their arguments. In our data, such theory is referred to in various ways (e.g., the secret, the contrarian truth, the contrarian investment thesis, the insight) but they all point to the idea that this theory must question some fundamental established belief at the core of a market. As such, this investment thesis should be non-obvious and unpopular:

“It is totally easy to have an insight when everyone else has the same insight. Have you ever tried to have an insight when it is not popular? Have you ever had an insight when people said that it is a bad idea? Most of the successful YC companies' ideas looked stupid when they started and if they were the types of people who were polling their friends in order to pick an idea, their companies would have never existed.” (Michael Seibel)

Interestingly, while the adoption of scientific terminology (e.g., hypothesis, thesis, experiments, assumptions) reflects an approach to business creation based on a scientific method, it is also acknowledged that in entrepreneurship a fundamental premise for scientific experimentation is often missing: the possibility to have laboratory conditions is lacking. As a result, while founders are encouraged to theorize about problems and to experiment with solutions, entrepreneurs can rarely do true experiments, so success is often the result of a unique combination of favorable conditions.

¹ To put that into context, aspirational goals are a hundred million dollars in yearly revenues and/or a billion-dollar evaluation in five to ten years.

Indeterminacy. Our data show that entrepreneurs operate not only in a context where it is not possible to run true experiments but also in an indeterminate domain where no rule is universal, where existing knowledge is scarcely relevant and where luck plays a prominent role. In fact, as founders' hypotheses rest on unpopular investment theses, the business potential of the opportunities they see is at best controversial and, in most cases, it looks quite thin. In other words, unpopular investment theses imply implausible markets. By design, this is supposed to help new ventures operate in free space without significant competition. Yet, the drawback is that it is the founders that will have to turn such unattractive markets into profitable monopolies. The implications of operating in such market spaces are: 1) the final outcome is ex-ante indeterminate because the emergence of a profitable market depends also on the founders' agency; 2) whether the founders' will have the right combination of skills, resources, and favorable conditions to succeed at building a new market within a reasonable time span is highly contingent on uncontrollable external factors; 3) the uniqueness of the contingencies that characterize new market creation significantly constrains both the possibility of counting on guidelines to direct the founders' actions and the value of pre-existing knowledge. For instance:

“If you want a mentor and someone is going to tell you how to build a billion dollar business, I am telling you right now: that person doesn't exist. That is a lie. Anyone who tells you that they are that person, they are lying to you.” (Michael Seibel)

Balanced persistence

Experimenting with products and features implies a high degree of change. Similarly, the accumulation of empirical data is supposed to foster learning, which implies a change of behavior. In such a dynamic context, the founders' vision is the element of continuity that keeps the entrepreneurial project together in the long run.

Short-term revisioning. As described in the previous paragraphs, new ventures' products can be framed as experiments that founders run to test their business hypotheses. Launching and

improving the product through iteration cycles are not one-time events but rather they are stages of a single process. At the beginning of the operations, new ventures' products often seem extravagant, implausible, or unlikely. While these qualities would not normally describe a clear business opportunity, they are deemed desirable qualities for new ventures that aim to create new markets and product categories:

"I love it when ideas seem implausible in the right way!" (Paul Graham)

As highlighted before, the potential to create new markets derives from investment theses that challenge established business assumptions. As reasonable business ideas are unlikely to derive from such unpopular investment theses, the assumption is that business ideas have more potential when they do not sound promising on paper. The purpose of the iterative process undertaken by the founders is thus to refine the original product idea to verify whether the market potential exists and, if so, to figure out how to realize it. As a result of this process, the product that new ventures will eventually scale will be significantly different from that they initially launched. Contrary to the conventions of business planning, we found that there was no presumption that the business potential of a new venture can be captured by an ex-ante design of the product, business model, and strategy. Those are all unknowns that will be revealed over time thanks to the data founders will acquire by experimenting with different products and product-features. On this premise, it appears that new ventures' potential has more to do with the particular problem that the founders decided to solve than with the initial solution they will test and will be likely proven ineffective:

"They [entrepreneurs] think their solution is the genius part. I think the problem is the genius part. I think that figuring out a problem that other people have not figured out is worth working on is the genius part" (Michael Seibel)

As a result, while changing the product and its features is considered the physiological way to progress towards PMF, giving up on a promising problem is considered a mistake. Our data indicate that founders make this mistake significantly more often than they should, up to the point that the term “pivotitis” has been coined to describe a pathological tendency to pivot. Pivoting, in fact, refers to the fallacy of keeping a product constant and experimenting with different problems that such a product may help solve – rather than experimenting with different versions of a product to solve a given problem.

Long-term envisioning. Keeping the problem constant and experimenting with different solutions, rather than the other way round, emerges as an important premise for the long-term prospects of a new venture. To keep progressing, new ventures need to develop and accumulate knowledge about both the problem and the people who experience it. In every experiment, the founders acquire new data and produce additional information. With such an expanded knowledge base, founders can make better product decisions and move the new venture forward. Instead, when a solution initially developed to solve a particular problem is used to solve a different one, the stock of knowledge that founders had accumulated loses a significant portion of its value, which is a major setback for the venture. As such, founders are strongly encouraged to be anchored to the problem they chose to solve, in spite of the hardships, losses, and failures that they will inevitably experience along the way. In this sense, while persistence does not guarantee success, it still emerges as a necessary condition for turning a small new venture into a large company. Several comments in our dataset indicate that most often new ventures even miss their chance to succeed because their founders give up or lose their focus on the initial problem. Conversely, a strong attachment to the problem, which should provide founders with a sense of purpose and motivation, is considered a strong asset:

“The best companies are always mission oriented. It is difficult to get a large group of people to the extreme level of focus and productivity that you need for startups to be successful unless the company feels like an important mission” (Sam Altman)

The anchoring to the problem becomes the element of continuity that bridges the various stage of the venture and across the changes that it will experience over its life-cycle:

“Airbnb, you know, a lot of people describe it as a way to book a room or house and you travel around the world. And that is what we do. But that is not at all why we do it [...]. At our core, what we are about is much more than just booking a room and traveling. What we are about is we want to help bring the world together and we want to do that by giving a sense of belonging anywhere you go. So, our mission is to belong anywhere. So, 5 years from now, 20 years from now, maybe we are still selling rooms and houses but maybe we are not. But I can guarantee you that we are always going to be about this sense of belonging and bringing people together. And that is the more enduring idea.” (Brian Chesky)

Paradoxical execution of the four pillars for scalability

We found four sources of tensions and paradoxical executions within the four aggregate dimensions behind scalability. A first tension derives from the necessity to paradoxically combine rush and patience. *Rush* emerged as relevant for improving the product’s performance: achieving market acceptance early requires speed to cycling rapidly through continuously improving the product. At the same time, *patience* characterized the ideal approach to scaling. In fact, waiting for the right moment to begin the scaling process is necessary to avoid building structure – i.e., additional functions, new hires, attraction of investments – before market uncertainty is resolved. Such tension between rush and patience is encompassed in the “time mastery” aggregate dimension characterized by the paradoxical prescription ‘*go fast, but wait*’.

A second tension or challenge derived from paradoxically combining ambition and modesty. *Ambition* in the growth intentions drives new ventures’ paths for scalability. Yet, before the right conditions for scaling manifest, the venture’s character in the startup stage should be *modest*. This is reflected by several factors: 1) the size of the venture’s team, which

should be as small as possible to contain costs and avoid formalization; 2) the essentiality of the products, which should have limited functionality; 3) the approach to problem solving, which should employ frugal and manual solutions. Such tension between ambition and modesty characterizes the “Progressive Scaling” aggregate dimension, which implies the paradoxical prescription ‘*get big, but act small*’.

A third tension was between persistence and flexibility. In fact, turning a startup into a large company requires a significant amount of time, effort, and resilience through hard work despite many failed experiments. To make it, founders need to *persist* and not abandon their entrepreneurial project. As discussed above, persistence requires anchoring to the long-term vision of the venture while at the same time founders need to be *flexible* regarding how they may succeed at solving problems. This implies a certain openness to reconsider, revise, and let go of any part of the venture’s vision that reveals itself as poorly planned. Such tension between persistence and flexibility is encompassed in the “balanced persistence” aggregate dimension, which is characterized by the paradoxical prescription ‘*persist, but change*’.

Finally, the fourth tension derives from paradoxically accepting and combining indeterminacy and experimentation. Our data confirmed that entrepreneurship at YC was recognized as an *indeterminate* domain where pre-existing knowledge is scarcely relevant and universal rules do not exist, but at the same time these conditions require *experimentation* given that business planning and forecasting are made unreliable. By experimenting with products, prices, and business models, founders can confirm or reject their hypotheses based on market evidence, but in the absence of absolute rules or laboratory conditions, experimenting alone cannot ensure success. Such tension between indeterminacy and experimentation characterizes the “tentative experimentation” dimension, which requires following the paradoxical prescription

‘experiment, but accept indeterminateness’. In sum, our findings indicate that building startups with the potential to scale requires addressing at least four important tensions embracing a paradoxical execution. In the presence of such kind of tensions, paradox studies maintain that organizations should make efforts to meet multiple divergent and competing demands simultaneously – rather than sequentially – to avoid short-term results compromising the ability to achieve long-term objectives (Lewis, 2000; Smith and Lewis, 2011). As such, adopting a simultaneously contradictory and yet interwoven approach to these tensions is vital for the prosperity of an organizational system. At the same time, our *‘paradoxical execution’* represents an expression of that architectural knowledge that fosters new ventures’ scalability and that is spread through accelerators’ entrepreneurial training. Figure 2 shows how the four pillars of Paradoxical Execution relate to venture’s development and the lean startup approach.

- Insert Figure 2 about here -

DISCUSSION

Our study contributes to research on entrepreneurial ecosystems, paradox theory, and organizational scaling. First, we reveal architectural knowledge about a generic business process that facilitates the development of scalability in new ventures. Past literature on entrepreneurial ecosystems, in fact, argued that ecosystems are clusters aimed to foster business model innovation and ventures’ scaleup through the diffusion of architectural knowledge (Autio et al., 2018) and identified ESOs – and accelerators in particular – as key actors for the diffusion and absorption of such knowledge (Goswami et al., 2018). Yet, previous studies on ESOs (including accelerators) have mostly focused on examining the effect of entrepreneurial training on ventures’ performance, which correlate to but do not imply scalability. In this way, existing literature almost neglected how entrepreneurial training provided during the startup stage may

help founders build scalable companies or facilitate organizational scaling. This creates a gap in our knowledge of what happens in the startup stage that helps succeed during the scaling stage and limits entrepreneurial ecosystems' contribution to organizational scaling to a mere provision of financial resources. Our study shows that the prescriptions of Paradoxical Execution provide founders with specific directions on how to develop scalable ventures and deal with the tensions and challenges on the path to scaling their businesses. Such evidence shows that entrepreneurial ecosystems can foster the scaling of ventures not only by facilitating access to financial resources but also by providing architectural knowledge that helps build scalable companies.

Second, our paper also contributes to the paradox theory literature (e.g., Schad et al., 2016; Smith and Lewis, 2011). We highlight that we did not consider this literature stream *ex-ante*; rather, our inductive data analysis empirically drove our narration in that direction. The concept of paradoxes, indeed, is recurrent in our findings, which indicate that the set of paradoxical prescriptions identified in this study may be considered as a simultaneously contradictory and yet interwoven approach to tensions, which is in turn vital for the development and scaleup of new ventures. This interpretation of our findings from a paradox perspective provides a strong theoretical basis to explain why Paradoxical Execution fosters ventures' scalability, which is especially important for the development of a literature stream that is largely practitioner-based (Autio et al., 2018) and under-theorized (Bergman and McMullen, 2021). Accordingly, strategy and organization scholars define what is a paradox, differentiating the term from similar yet distinct concepts, such as dualities, dilemmas, or dialectics. A core element of paradoxes is, in fact, that the contrasting elements appear logical and meaningful if individually assessed but they turn to be irrational, illogical, or absurd when brought together (Lewis, 2000). Thus, a widely accepted definition for a paradox is: “[a set of] contradictory yet interrelated

elements that exist simultaneously and persist over time.” (Smith and Lewis, p.382). A key caveat is that paradoxes are part of complex systems, thus adopting a simultaneously contradictory yet interwoven approach to those tensions is vital for the system’s prosperity. This concept finds applications within several research fields, and entrepreneurship is not an exception. For example, scholars discussed the ambiguous role of knowledge that can either foster or hamper entrepreneurial creativity (Ward, 2004), how nascent firms need different resources that are simultaneously difficult to get due to legitimacy lack (Mafico et al, 2021), why entrepreneurial and sustainability orientation represent conflicting objectives to achieve (DiVito and Bohnsack, 2017), and whether higher owner age should promote formal succession plans, while also hampering cooperative conflict management (Marshall et al., 2006). These contributions, among others, reveal how entrepreneurs need to face (and reconcile) different paradoxes during their professional activity. However, to date, entrepreneurial scholars identified paradoxes that almost completely affect some specific and circumscribed aspects of the new venture lifecycle. Our study reveals how paradoxical execution is a key essence of entrepreneurship which reveals itself from the very beginning of the new venture’s creation process, de facto becoming its inner soul when a paramount entrepreneurial goal is sought to be achieved: scaling. Accordingly, we show how developing a paradox mindset is key to unlocking the potential of everyday tensions, extending the concept from an individual to a new venture perspective (Miron-Spektor et al., 2018). Indeed, we argue that accelerators should help entrepreneurs to develop a paradox mindset that helps them reconciling the numerous tensions and paradoxes they continuously challenge. Organizations should make efforts to meet multiple divergent and competing demands simultaneously – instead of choosing among them or even addressing paradoxes sequentially (Lewis, 2000; Smith and Lewis, 2011). Coherently, our

findings indicate that building companies with the potential to scale is a fundamentally demanding project because of the necessity to address tensions deriving from conflicting or contradictory priorities. While previous research mostly believes that firms embody paradoxes as they mature from entrepreneurial to more established stages (Fiol, 2002), our study reveals that a paradoxical mindset is needed from the very infant stage.

Third, our study contributes to the literature on organizational scaling. Indeed, we show that scaling is an organizational outcome that can be facilitated by actions purposefully undertaken long before a venture approaches the scaling process. This finding is in line with studies that adopted an endurance narrative to examine organizational scaling (Desantola and Gulati, 2017). However, while past works identified several key internal and external challenges that firms must face during the scaling process, our work shows that companies that aim to scale face unique and significant challenges even before the beginning of the scaling process. In other words, while our study confirms that knowledge can help founders deal with these challenges, it moves beyond the identification of some domain-specific knowledge – e.g., industry-level recipes (Monaghan and Tippmann, 2018) – as a factor that helps founders navigate through the scaling process. Our work, indeed, shows that entrepreneurial training can help new ventures identify and tackle early challenges through architectural knowledge, i.e., through knowledge that is not specific to any industry, because it relates to the generic business process of venture development and scaleup. Coviello (2019), for instance, argues that scalable processes may allow operating in different industries and geographical markets thanks to automatized and standardized procedures. Similarly, Rao and Sutton (2014) argue that processes should be designed to address the “problem of more”, which refers to making decisions that are optimal for the future rather than the present and to identify solutions that are effective both before and

during the scaling process. Our findings, however, highlight a diametrically opposite approach: our “Bounded Problem Solving” construct reflects a managerial approach to problem solving that involves solutions that are intendedly unsustainable as the organization grows (*doing things that don't scale*). Such solutions need to solve exclusively problems that are relevant to the current organizational context (*solving marginal problems*) whereas problems that might become relevant in the future need to be purposefully ignored in the present (*letting fires burn*) both because of resource constraints and because problems change significantly and repeatedly before and during the scaling process.

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TABLES AND FIGURES

Table 1: Overview of data

	Media Interviews	Blogs		Newspapers			Specialized Magazines	
Source	YouTube	YC	Founders	Financial Times	WSJ*	The Economic Times	Tech Crunch	Business Insider
Use in the Analysis	Core data to generate first-order findings	Robustness check to verify findings' accuracy		Familiarize with context, triangulate interpretations emerging from interviews, reduce potential “positive” bias by adding a third-parties’ / neutral perspective				
Amount	64	161	191	211	775	240	1,683	306
Duration - # of pages	46:22:03**	453	397	582	2,221	510	2,573	547

*This includes both the Wall Street Journal (standard version) and WSJ Pro Venture Capital.

** Expressed as hh:mm:ss

Table 2: Content topics of the audio-visual material

Type of video	Content of the videos	No. of videos	Total Length (hh:mm)	Average Length (hh:mm)
Thematic	Customer development	3	1:24	0:28
Thematic	Expansion of the customer base	3	2:30	0:50
Thematic	Fundraising	3	1:24	0:28
Thematic	Idea evaluation	1	0:26	0:26
Thematic	Legal mechanics	1	0:57	0:57
Thematic	Marketing	2	0:38	0:19
Thematic	Marketing; Fundraising	1	0:49	0:49
Thematic	Metrics	3	1:56	0:38
Thematic	Operations	6	4:04	0:40
Thematic	Operations; Team and culture	1	0:46	0:46
Thematic	Product development - B2B MVP	1	0:46	0:46
Thematic	Product development - Design	2	1:26	0:43
Thematic	Product development - Hardware MVP	1	0:47	0:47
Thematic	Product development - Iteration cycles	2	0:50	0:25
Thematic	Product development - MVP	3	1:57	0:39
Thematic	Product development - MVP, Iteration cycles	1	0:48	0:48
Thematic	Product development - Pivoting	1	0:27	0:27
Thematic	Product development - PMF	2	1:11	0:35
Thematic	Product development; Customer development	1	0:52	0:52
Thematic	Team and culture	6	3:14	0:32
Generic	Multiple topics	20	19:04	0:57
	Total	64	46:27	00:40

Figure 1: Data Structure

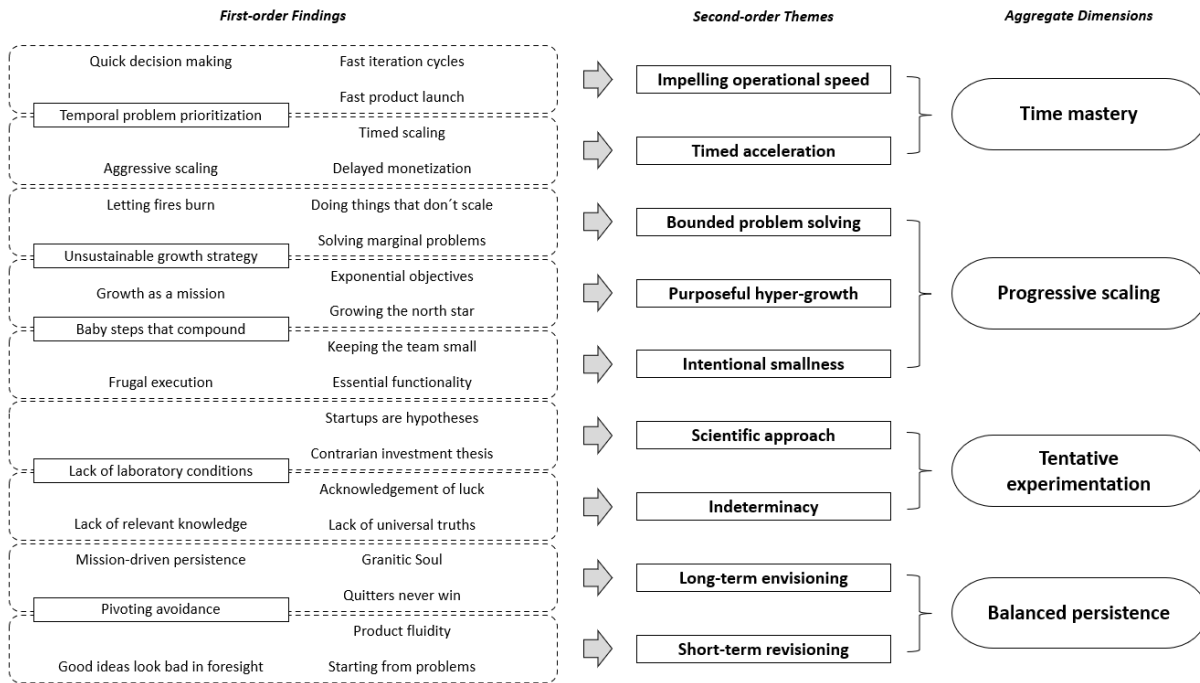
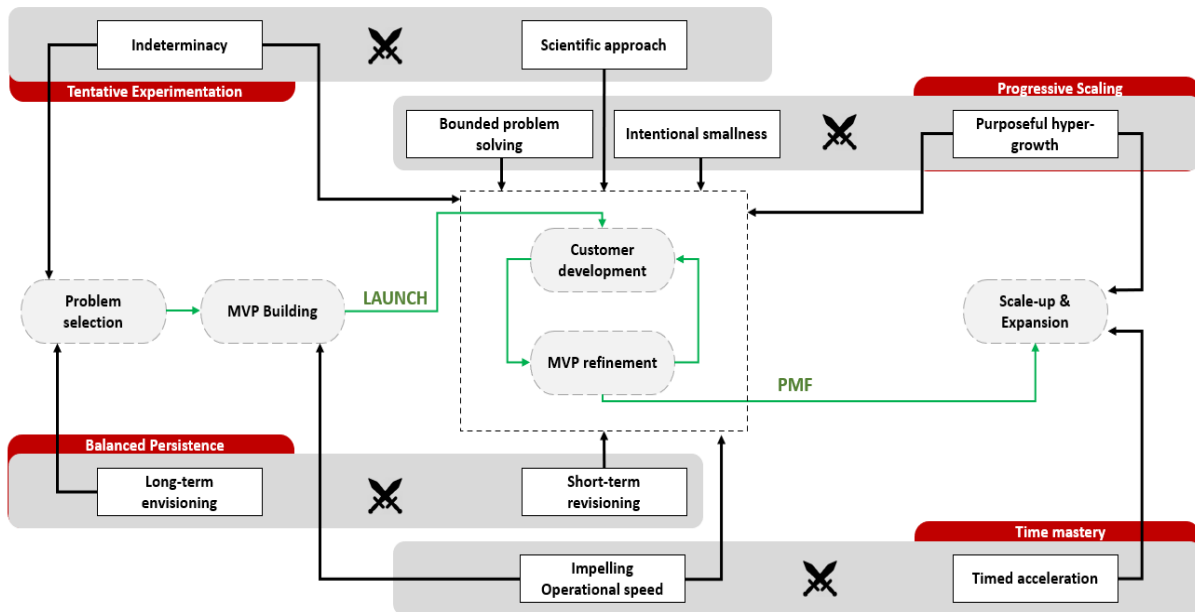


Figure 2: Process Model



Note: Five of the constructs that appear in the model – Problem Selection, MVP Building, Customer Development, MVP Refinement, Scale-UP & Expansion – did not feature in our analysis. Rather, they formed part of our case overview and were described in our empirical context section. This procedure has been undertaken in other qualitative studies before (e.g., Tracey and Phillips, 2016)

APPENDIX

Table A: Supporting Quotes for Data Structure

Supporting Quotes and Link with Exact Timestamp	1 st -order findings
LONG-TERM ENVISIONING:	
<p>“Airbnb you know a lot of people describe it as a way to book a room or house and you travel around the world. And that is what we do but that is not at all why we do it [...] at our core what we are about is much more than just booking a room or travel what we are about is we want to help bring the world together and we want to do that by giving a sense of belonging anywhere we you go so our mission is to belong anywhere so 5 years from now, 20 years from now maybe we are still selling rooms and houses but maybe we are not but I can guarantee you that we are always going to be about this sense of belonging and bringing people together. and that is the more enduring idea.” (Brian Chesky) [https://youtu.be/px5rgeNjOTc?t=1169]</p> <p>“When I hear “fail fast” I hear do not fall in love with the solution. Be radically critical of whether the solution is actually solving the problem and be willing to change it, modify it or throw it away because it is not solving the problem. That doesn’t mean changing the problem you are solving. The more solutions you throw at a problem and the more you learn about the problem and the more likely you are to actually solve the problem. But every time you change the problem, you are resetting the knowledge.” (Michael Seibel) [https://youtu.be/7ZC_E8_ah0?t=1771]</p>	<i>Granitic soul</i>
<p>“The best companies are always mission oriented. It is difficult to get a large group of people to the extreme level of focus and productivity that you need for startups to be successful unless the company feels like an important mission.” (Sam Altman) [https://youtu.be/egJeFaIXZLo?t=401]</p> <p>“You know, building a company is hard it’s a long process and there will be some really difficult times and if you are not proud of what you are doing to maintain the level of energy and enthusiasm you need to sustain the company.” (Tim Brady) [https://youtu.be/qnNHW6TYv5I?t=289]</p>	<i>Mission-driven persistence</i>
<p>“Look I really think that Silicon Valley gets the pivoting thing wrong. I try never to go to startup parties but every once in a while I forget why I don’t go to them and you know I go and at the last one I was at I was really struck by how much people like brag about pivoting. This is basically bragging about failing. And I think that the attitude about failing should be tolerant but “hey that sucks” like “let’s not do that again.” (Sam Altman) [https://www.youtube.com/watch?v=CxKXJWf-WMg&t=2291s]</p> <p>“Pivot is a really shitty horrible thing that somehow has become very popular nowadays but it is just the sign of absolute failure, repeated. [...] Most typically when you pivot you hold the solution constant and you change the problem or the customer.” (Michael Seibel) [https://www.youtube.com/watch?v=qypLB6fBvw4&t=1376s]</p>	<i>Pivoting avoidance</i>
<p>“If you pivot over and over again it causes whiplash. Whiplash is very bad because it causes founders to give up and not wanna work on this anymore and that actually kills the company. Weirdly, it’s more deadly to the company to get wiplash and get sad than to work on a bad idea because if you are having fun working on a bad idea, you won’t give up and then conceivably you can make it work. if you get sad and hate your life while you are working on your startup you will definitely not succeed and it’s because you will give up.” (Dalton Caldwell) [https://youtu.be/8pNxKX1SUGE?t=923]</p> <p>“People wanna hear that money is what makes companies work, great engineers or some secret or having some advisor who has done it before. Not quitting is what makes startups work.” (Michael Seibel) [https://youtu.be/7ZC_E8_ah0?t=623]</p>	<i>Quitters never win</i>
SHORT-TERM REVISIONING:	
<p>“The hardest part about coming up with great ideas is that the best ideas often look terrible at the beginning (...examples...) these all sounded really bad but turned out to be good if they had sounded really good there would have been too many people working on them.” (Sam Altman) [https://www.youtube.com/watch?v=egJeFaIXZLo&t=497s]</p> <p>“The companies that are good only look good on hindsight. Coinbase looked like a dumb idea. Coinbase had problems even raising 1 million dollars in demo-day. Everyone thought Bryan was an idiot. If Bryan had wanted to please investors he would have pivoted.” (Michael Seibel) [https://youtu.be/7ZC_E8_ah0?t=4550]</p>	<i>Good ideas look bad in foresight</i>
<p>“The product you launch with and the feature set you launch with is almost certainly not going to be the feature set you scale with.” (Walker Williams) [https://youtu.be/srOUabJd8qE?t=1353]</p> <p>“What usually convinces us is the founders and their team themselves. So we invest in people first not necessarily the product idea. The product ideas tend to morph a lot so we will invest in the team first.” (Ron Conway) [https://youtu.be/OJBOSmRo8js?t=2747]</p>	<i>Product fluidity</i>
<p>“If you have proprietary IP, there is a good chance that you never get to product power and we see examples of that probably all over Stanford, which is you find this really interesting piece of research and you are trying to figure out how to turn it into a startup company, and then someone at some point tells to you that is technology in search of a problem.” (Ann Miura-Ko) [https://www.youtube.com/watch?v=lgI89BLbeu8&t=1088s]</p> <p>“There is only one piece of advice for the solution and that is the best advice you could ever follow: “do not start from here”. [...] at YC we have an acronym for problems that we try to avoid [...] and that is SISP. It means a solution in search of a problem.” (Kevin Hale) [https://youtu.be/DOtC15PU8F0?t=647]</p>	<i>Start from problems</i>

BOUNDED PROBLEM SOLVING:

<p>“[At Airbnb] we had subscribed to this myth of SV that you have to solve problems scalably because that is the beauty of the internet, the beauty of code, one line of code can touch an infinite amount of people. And we had absolutely no growth. Then we had this session with Paul Graham who was the first person who told us that it was ok to do things that don’t scale, and to get out of this myth and to try everything. And the minute that that happened the creativity started to flow.” (Joe Gebbia) [https://youtu.be/TCA_7RVo7Uo?t=121]</p> <p>“In the beginning of your company, you are going to do a lot of things that do not feel right, they do not feel natural to you because it is not the kind of things that you learned in your previous jobs or in your school. It is just the most kind of physical real things that you have to do that are not going to be relevant later on. In YC we have this thing where we tell the companies that if you just launched you gotta do things that do not scale. [...] that is where everyone needs to start and if you went to school and learned that you should only work on things that really scale, you should unlearn that because when you start your company the most important thing is to do things that do not scale.” (Gustaf Alströmer) [https://youtu.be/6lY9CYIY4pQ?t=164]</p>	<p><i>Doing things that don’t scale</i></p>
<p>“A great rule of thumb is to only worry about the next order of magnitude. So when you have your 10th user you should not be wondering a "well how are we going to serve a million user" you should be worried about how to get to 100, when you are at 100 you should think about 1000.” (Walker Williams) [https://youtu.be/sr0UabJd8qE?t=1665]</p> <p>“My philosophy behind a lot of things that I teach startups is the best way to get to sort of a billion dollars is to focus on the values that help you get that first dollar, to acquire that first user.” (Kevin Hale) [https://youtu.be/12D8zEdOPYo?t=86]</p>	<p><i>Solving marginal problems</i></p>
<p>“One of the most fundamental advantages you have as a startup and that is that you are able to do things that do not scale and I define things that don’t scale as things that are sort of fundamentally unsustainable, they will not last, they will not bring in the millionth user and where they break it is usually time but it could a number of other things but it is really growth strategies that won’t take you to a million users.” (Walker Williams) [https://youtu.be/sr0UabJd8qE?t=995]</p> <p>“What doing things that don’t scale means is doing things in a sort of handmade, artisanal, painstaking way. That you feel "yeah, it would be great if you could do things that way forever" but in the back of your mind you think to yourself "there is no way we can keep doing this and become giant", right? [...] and also you learn a lot from it you learn a lot.” (Paul Graham) [https://youtu.be/4W05kJChg3w?t=1418]</p>	<p><i>Unsustainable growth strategies</i></p>
<p>“At first when you start a company everything is going to feel like a mess. And it really should. If you have too much process too much predictability you are probably not innovating fast enough and creatively enough. So it should feel like every day there is a new problem and what you are doing is fundamentally triaging. so some things will look like a problem and they are actually a cold and they are just going to go away [...] and you should not stress about it and should not allocate a lot of your time to it. and some things are going to present themselves as colds but just like in the emergency room if they are not diagnosed properly, they actually can become fatal.” (Keith Rabois) [https://youtu.be/w19IBxDu2Y4?t=157]</p> <p>“One of the key things, when you are looking at these different scales is not only which problem you do solve but also which problems you don’t solve. Part of the entrepreneurial journey and that happens even when you are at a scale of thousands is there are fires burning when you are going home. that’s fine. you have to know with which fires it is ok to go home. Like yeah, we can deal with that one next week. that’s fine. and which one you can’t.” (Reid Hoffman) [https://youtu.be/s3RrVmv5WwA?t=3352]</p>	<p><i>Letting fires burn</i></p>
<p>INTENTIONAL SMALLNESS:</p>	
<p>“Be a cereal entrepreneur. We believe constraints bring out creativity and when you raise 100 million dollars suddenly all that scrappiness is easy to lose all that scrappiness it is easy for people to tell you "you know I just need you this 50 thousand dollar contract" or I need this or need that. and whenever someone is not being just like frugal and not being creative or they tell me they can’t do something I’ll just take a box of cereal to suggest that they need to be scrappy and frugal.” (Brian Chesky) [https://youtu.be/px5rgcNjOTc?t=1587]</p> <p>“So the moral of the story for me or at least the way I think for projects I work on is like that that frugality is vital to me. Not everyone is the same and not every industry is the same. there are some crazy industries right now which are kinda by definition the opposite of frugal [...] where it is a matter of raising as much money as physically possible but for the vast majority of people staying frugal is what actually like.” (Eric Migicovsky) [https://youtu.be/7atCIUTkr3A?t=662]</p>	<p><i>Frugal execution</i></p>
<p>“No more than 6 people, no more than 8 people. Like that range is kind of the optimal range. Now, people always think that if we hire more people we’ll move faster. It turns out that above 6 to 8 people you move slower as you hire more people because you have to introduce management. so now the founders which are typically some of the most talented people in the team are spending their time managing and they are not spending their time talking to customers and building. the sad part of this is that I often have to talk to these companies and I have to tell them that they have to lay off all these people they hired and that sucks.” (Michael Seibel) [https://youtu.be/qypLB6fBvw4?t=1654]</p> <p>“I would not scale past about 20 people. So around 20 people, choose between 23 and 25, is when everything breaks in a startup because you can no longer be just you know completely flat.” (David Rusenko) [https://youtu.be/OLNQT9LVM0?t=2148]</p>	<p><i>Keeping the team small</i></p>
<p>“If you compound, if you can have this product cycle of whatever you are building it’s 10% better every week and you project that out and you do that for three or four years and then you are like, you know, a really big company.” (Sam Altman) [https://youtu.be/CxKXJWf-WMg?t=2219]</p> <p>“So growth is a little hard to grok but if you look at this chart you’ll see that how small variations in weekly growth rates can make a huge difference on the monthly and yearly time horizon.” (Adora Cheung) [https://youtu.be/IL6GdUHIBsM?t=995]</p>	<p><i>Baby steps that compound</i></p>
<p>“If you are going to build just one feature on top of google docs, what would that feature be, right? And for a new product like this that might be a good way to get started thinking where to go, which is ok so they are extensively using this thing right now, how can I make that experience one quantum better something that would be really exciting to this person to be one step ahead.” (Emmett Shear) [https://youtu.be/1Hs9hQBS0JU?t=1152]</p> <p>“You wanna start intentionally small. [...] you wanna find the wedge that is sort the very natural place where you can create a product that will slip in between the gaps of other existing products but is something that you think over time expands to become a more important part of the enterprise architecture [...] and it might feel small at first maybe you are going after</p>	<p><i>Essential functionality</i></p>

small businesses and then you are going to move up market maybe you are just starting a sliver of the use case and then you are going to expand out but you intentionally start small because you will not be able to compete with an incumbent because the incumbent is going to always go for the full solution so you have to find the gaps in the full solution that are significant enough.” (Aaron Levie) [https://www.youtube.com/watch?v=Kd3CLS-vLtw&t=435]

PURPOSEFUL HYPER-GROWTH:

“Because startup equals growth you should focus on exponential goals and not linear goals.” (Adora Cheung) [https://youtu.be/IL6GdUHIBsM?t=1179]

“So we have to work hard with the hard tech companies to figure out what their core metric is and what they can get better at 10% each week but a company has to get better at something 10% each week in the early days. and if you compound if you can have this product cycle or whatever you are building that is 10% better every week and you project that out, you do that for three or four years, then you are like, you know, a really big company.” (Sam Altman) [https://youtu.be/CxKXJWf-WMg?t=2161]

Exponential objectives

“When you are operating for growth it is critical that you have that north star and you define that as a leader.” (Alex Schultz) [https://youtu.be/vJqIG5ytLDs?t=800]

“The goal of your startup is to grow your primary metric. By doing this it does two things. It proves that you are making something that a lot of people want and second you are proving that you are making something that has the possibility of reaching and serving all those people. Each week your goal should be to set a weekly growth rate. We use weekly increments because startups need frequent feedback to tweak what they are doing but also because it helps devide the progress you need into doable chunks.” (Adora Cheung) [https://youtu.be/IL6GdUHIBsM?t=854]

Growing as the north star

“For us, at YC the definition of a startup is a company that is designed or created to try to grow very quickly. So if you are not trying to do a company that grows very very fast then you are just building a normal company, it is a small business and there is nothing wrong with that but these are the companies that investors are interested in.” (Kevin Hale) [https://youtu.be/DOtCI5PU8F0?t=180]

Growth as the mission

“My contrarian viewpoint or whatever is if you are a startup you shouldn’t have a fucking growth team [...]. Startups should not have growth teams. The whole copmany should be the growth team. The CEO should be the head of growth.” (Alex Schultz) [https://youtu.be/vJqIG5ytLDs?t=649]

SCIENTIFIC APPROACH:

“Every great startup has one fundamental assumption that has less than 50% chance of being correct but if true it will give you a 20x a 100x advantage in the market.” (Ann Miura-Ko) [https://youtu.be/IgI89BLbeu8?t=1001]

Contrarian investment thesis

“It is actually pretty easy to be contrarian. It is hard to be a contrarian and right.” (Reid Hoffman) [https://youtu.be/pkAum45ubWc?t=605]

“Every billion dollar company is like a unique product in a unique moment in time and if you were to do the exact something in a different moment in time there would be a different result. That is the opposite of science! [...] in business it is the exact opposite. So while there are certain principles that are important, if we extend it too far, we do not get anywhere because we can’t experiment, it’s not repeatable, we can’t run true experiments.” (Michael Seibel) [https://youtu.be/m4isFputh68?t=6795]

Lack of lab conditions

“You know the history of technology is such that every moment happens only once and so you know the next Mark Zuckerberg won’t build a social network, the next Larry Page won’t build a search engine and the next Bill Gates won’t build an operating system.” (Peter Thiel) [https://youtu.be/3Fx5Q8xGU8k?t=1137]

“A startup is an observation of a problem and a hypothesis on a solution.” (Michael Seibel) [https://youtu.be/7ZC_E8_ah0?t=1771]

“Test your hypothesis. You wanna treat your startup ideas like experiments.” (Stanley Tang) [https://youtu.be/sr0UabJd8qE?t=647]

Startups as hypotheses

INDETERMINACY:

“It is not just that the outcomes of startups are hard to predict I think to some degree they are actually undeterminate. There is a huge amount of luck involved you know.” (Paul Graham) [https://youtu.be/4WO5kJChg3w?t=460]

Acknowledgement of luck

“The outcome is something like idea times product times execution times team times luck, where luck is a random number between 0 and 10 thousand, literally that much.” (Sam Altman) [https://youtu.be/egJeFaIXZLo?t=142]

“All the great products are new to the world and it is hard to give you advice on what to build. There are enough commonalities that we can give you a lot of advice but how to build it.” (Sam Altman) [https://youtu.be/egJeFaIXZLo?t=933]

Lack of relevant knowledge

“Most accelerators are horrible in every way, horrible in every way, have no record of success, , have an alumni base that you do not want associate yourself with, are not making money, will go out of business. If you want to make the world a better place I almost rather you go start without an accelerator [...] and by the way I do not think that the people running it are bad people. I think they are perfectly fine people but I just think they made a very critical mistake and the mistake is thinking that the value of an accelerator is to help you with the core part of your business.” (Michael Seibel) [https://www.youtube.com/watch?v=m4isFputh68&t=4997s]

“Part of the idea is that it is not a simple recipe. It is not insert a capital, insert a little technology, stir, it happens. So there is heuristics not rules, there is ways to think about this and so that is the kind of thing we are doing and is more or less big concepts.” (Reid Hoffman) [https://youtu.be/s3RrVmv5WwA?t=443]

Lack of universal truths

“So, at YC we have been teaching people how to start startups for nine years. Most of it is very hands-on and specific to the startups but 30% of it is pretty generally applicable.” (Sam Altman) [https://youtu.be/egJeFaIXZLo?t=33]

IMPELLING OPERATIONAL SPEED:

“Your job in those early moments in those early days of a startup is to progress and iterate as fast as possible to reach that product that does have market fit.” (Walker Williams) [https://youtu.be/sr0UabJd8qE?t=1568]

Fast iteration cycles

“At the beginning is all about getting this thing off the ground and trying to find PMF.” (Stanley Tang) [https://youtu.be/sr0UabJd8qE?t=629]

“The quote [...] that I will never leave down is that “if you are not embarrassed by your product release, you released too late” the whole point of that quote is to say the importance of speed and the importance of time.” (Reid Hoffman) [https://youtu.be/s3RrVmv5WwA?t=1775]

Fast product launch

“Launch fast. We launched you know in less than one hour with a really simple landing page.” (Stanley Tang) [https://youtu.be/sr0UabJd8qE?t=651]

“Where you get screwed up is when you get too long to make decisions not when you make the wrong decision.” (Michael Seibel) [https://youtu.be/7ZC_E8__ah0?t=1988]

“The trick to being a great founder at least in the early stages and honestly this kind of goes on forever is the ability to be presented with a problem like you have never seen before and solve it very quickly.” (Sam Altman) [https://youtu.be/CxKXJWf-WMg?t=1091]

Quick decision making

“One of the key things in both startups and scaleups is to solve problems at the right time, do not pre-solve them [...] we know we need to be operational efficient; we know we need to be focused on operating margins and how cost work and how scale works and everything else in a capital efficient model, but not yet.” (Reid Hoffman) [https://www.youtube.com/watch?v=PB64IQRkID8&t=2295s]

Temporal problem prioritization

“You should be focusing on what is right ahead of you in that week. Do things that do not scale today if that is the best way to get those 100 users and do not worry of the eventual goal of 10 thousand too soon.” (Adora Cheung) [https://youtu.be/IL6GdUHIBsM?t=906]

TIMED ACCELERATION:

“Once you achieve PMF and I think this is the mistake that we made, scale aggressively once you achieve PMF. So at this point presumably you have either found or created a new market but it is likely you are not the only one. You may have not heard of your competitors yet but there is probably other people out there doing the same thing. you are in a race to capture this new market and advantages accrue to the number one player; they always do.” (David Rusenko) [https://youtu.be/0LNQxT9LvM0?t=2234]

Aggressive scaling

“We intersect technology invention with business invention, where that business invention includes networks effect, new business models and so forth and then seeing those we realize that certain of those businesses are super important and we move really fast to establish that business model.” (Reid Hoffman) [https://youtu.be/PB64IQRkID8?t=179]

“Building a large audience is a pre-requisite for monetization [...] because eventually when your startup starts making money revenue is just a multiple of your active users.” (Adora Cheung) [https://youtu.be/IL6GdUHIBsM?t=424]

Delayed monetization

“Making money I put it as a very distant third (challenge). It is usually a lot harder to build a product that a lot of people really really want than it is to figure out how to make money from that product.” (David Rusenko) [https://youtu.be/0LNQxT9LvM0?t=696]

“You can’t get a monopoly in a big market right away, too much competition for that. You have to find a small market, in which you can get a monopoly and then quickly expand. This is why some great startup ideas look really bad at the beginning.” (Sam Altman) [https://youtu.be/egJeFaIXZLo?t=537]

Rapid expansion

“You want to go after small markets if you are a startup. You know you want to get to a monopoly. You are starting a new company you want to get to a monopoly. Monopoly is you have a large share of a market. How do you get to a large share of a market? you start with a really small market, and you take over that market and then over time you find ways to expand that market in concentric circles. and the thing that is always a big mistake is going after a giant market on day one because that is typically evidence that you haven’t defined the categories correctly and it normally means that there is going to be too much competition in one way or another. and I think that almost all the successful companies in silicon valley had some model of starting with small markets and expanding.” (Peter Thiel) [https://youtu.be/3Fx5Q8xGU8k?t=820]

“If it does not flatten out don’t go and do growth tactics, go and do virality, don’t hire a growth hacker, focus on getting product market/fit because in the end [...] if you don’t have a great product there’s no point executing well on growing it because it won’t grow.” (Alex Schultz) [https://youtu.be/vJqIG5ytLDs?t=355]

Timed scaling

“If you decide to hit the afterburners now, and your business model isn’t ready, your company actually isn’t ready, that is one of the ways actually you miss the curve and you die.” (Reid Hoffman) [https://youtu.be/s3RrVmv5WwA?t=2075]
