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Why Startups Fail:

A Survey of Empirical Studies

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Introduction

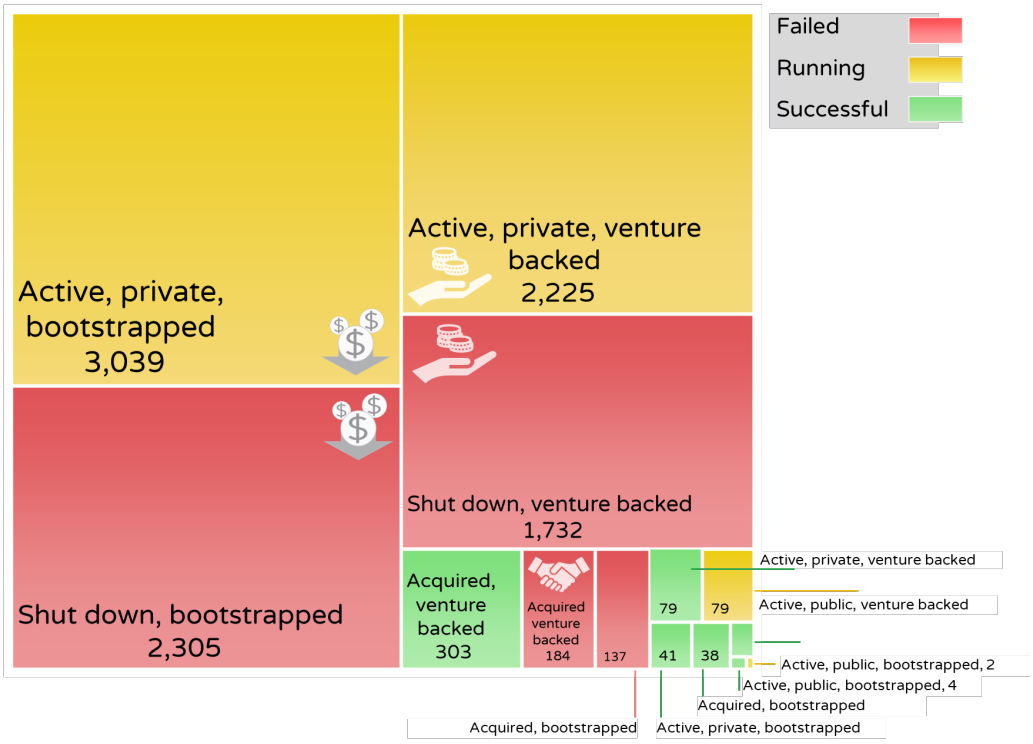
For over half a century, economists have understood and established that the primary engine of economic growth is innovation. Solow's seminal 1957 paper[1] used the concept of the aggregate production function to show that historically, two-thirds of US economic growth arose from "technical progress", an early term for innovation. One consequence is that many countries, including Israel, have pursued development strategies based on entrepreneurs launching startups driven by innovation. For Israel, it has proved highly successful; a growing number of countries seek to join this club.

Innovation is risky. Most startups do not succeed. The failure rate for startups varies across countries and is difficult to measure. For Israel, a study by the Israel Venture Center/ReversExit of 10,000 startups from 1999 to 2014 revealed this: "Only four of 100 startups succeed; only four of 500 are successful growing independently" [2].

Figure 1 shows the three-way division of startup success and failure in the IVC study:

"Of more than 5,400 companies active today", notes the IVC study, "only 139 can be defined as successful (2.5 %). The indicators for successful active companies consist of annual revenues of $100 million or 100 plus employees. The application of more flexible criteria to include companies with valuations of $50 million or more exhibiting sales growth…expands the number of successful companies to below 350. In other words, even with a lower threshold, only six per cent of currently active startups can be deemed successful."

Figure 1: Israeli Startup History 1999-2014: Failed; Running; Success



Source: SNI team after IVC/ReversExit, Israeli Startup Success Report 1999-2014. Tel Aviv: Jan. 28, 2015

Zombies (walking dead): Figure 1 reveals a result more disturbing, perhaps, than bankruptcy and failure. Many companies do reach the product development stage – but fail when it comes to market reach. They achieve minimal revenues, and are classes as "running" – but do not succeed in growing nor will they.

More than half of the 10,000 startups studied (5,264) are such 'zombies', walking dead – they are technically 'alive', they take up 'oxygen' (skilled manpower) but do not contribute to economic wellbeing of society.

There is a vast number of books and articles on successful startups. The first author has admittedly contributed to this flood of paper[3]. The literature on the underlying causes of startup failure is much smaller.

In this essay, we survey some of this literature, focusing on empirical studies across several countries. We find that the fundamental causes of startup failure are well known and reasonably consistent across countries. Yet for some reason, many entrepreneurs continue to launch startups before they thoroughly and intensively pursue a pre-launch checklist of 'failure factors', to improve the odds of success. We strongly believe that the odds of startup success can be greatly improved, through a pre-launch back-to-basics approach [4]. Innovation is risky, but the odds of success are definitely partly under the control of the entrepreneur.

Failure is a Part of Founding

Those actively engaged in innovating are of course aware of the steep odds against them. One approach to 'facing the wolf' is to embrace it – make failure a success.

"In Silicon Valley, failure is almost a religion, a necessary rite of passage on the path to world-changing innovation. Risks and f*ck-ups? They're all part of the formula for those wanting to make a dent in the universe. As Tesla's founder Elon Musk said: 'If things are not failing, you are not innovating."

Triebel et al.[5] observe that worldwide, "the number of startup companies each year is accompanied by an even higher number of company closures" – at a time (2014/15) when the global economy was doing well. Their conclusion is this:

"Failure cannot be avoided. As long as there are people who choose to start a business, there will be a share of failure…..every company founder should be aware of the fact that an important factor for establishing a company is the fault tolerance – a process of recognizing, accepting and learning from errors…'try again, fail again, fail better'." [5], p. 138.

It is incontrovertibly true that startup entrepreneurship – and innovation in general – is risky. Risk is built-in. It is also true that a culture of 'fail and try again' is vital; Japan, for instance, has relatively little startup entrepreneurship, because the national culture

appears to attach stigma to startup failure. Nations whose culture accepts failure are far more likely to have thriving entrepreneurial ecosystems.

However, in this essay, we argue strongly that while learning from failure is vital, learning to prevent failure is even more so. And a culture of celebrating failure may not actively foster a culture of 'forewarned, forearmed' or 'look carefully before you leap'. Are 'celebrating failure' parties, now so popular, truly constructive, or simply stroke the egos of entrepreneurs who made basic mistakes that could have been avoided?

The causes of startup failure are almost universal, across countries, as we note below. Why not leverage this store of knowledge, to carefully forestall the key failure factors (KFF's)? The obverse of KFF is KSF – Key Success Factors. Why not turn failure into success, or at least try, BEFORE failure occurs rather than after, as a post-mortem.

The Many Varieties of Startup Failure

"Attention must be paid!" – Linda, responding to Biff's statement that terrible things are happening to Willy, in the play Death of a Salesman

Figure 2 shows the 12 basic causes of startup failure, drawn from the US. See [6]. In order of importance: ran out of cash; no market need; flawed business model; regulatory/legal challenges; pricing and cost issues; not the right team; product mistimed; poor product; disharmony among founders; pivot gone bad; burned out/lacked passion.

It is important to understand that each failure factors is in general a sufficient condition for failure – that is, you need to have sufficient cash AND demonstrated market need AND regulatory/legal approval AND optimal price and cost AND a strong team AND the right timing AND harmony among founders AND a clever pivot AND strong sustained passion.

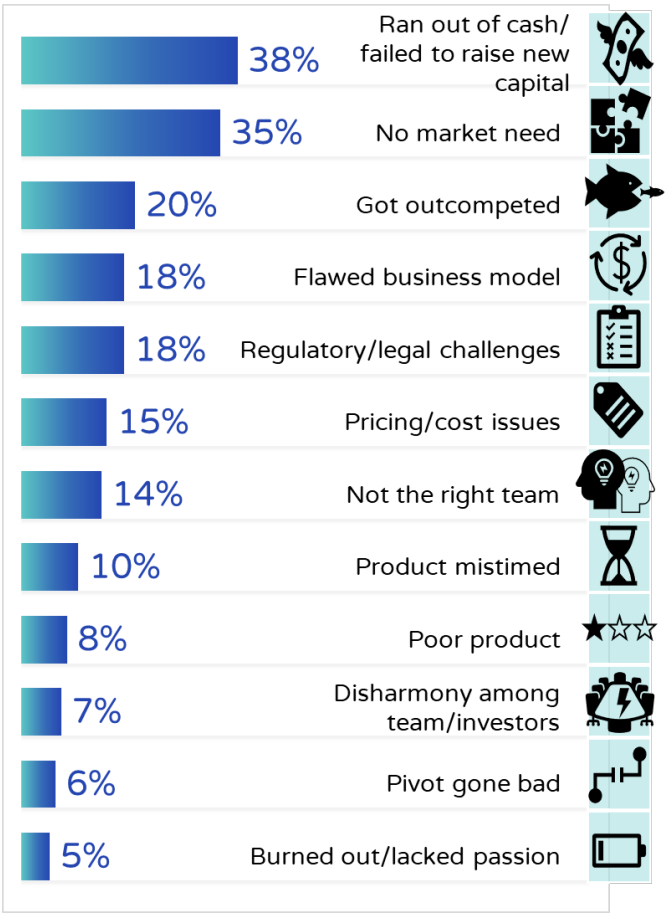
The basic math of failure is simple. Let us say that the odds of preventing or surmounting each failure factor are 80%. In general, many startups do not achieve this level of excellence. The overall odds of success, therefore, are:

$$0.8^{12} = 0.0687 \text{ or } 6.9\%$$

This is roughly the actual odds of success for a startup in many countries.

These KFF Key Failure Factors seem to be almost universal, and re-appear across many countries. There may be differences in order of importance, but in general, the fathers of failure are consistent across nations and over time. This fact alone demands that entrepreneurs be keenly aware in advance, before launch, of all the things that could potentially go wrong, and make strenuous efforts to forestall them. Better to celebrate exhaustive preparation than negligent failure.

Figure 2: 12 Reasons Startups Fail



Source: SNI team after CB Insights Sept. 2021[6]

Vedat Ondas[7] studied startup failure data from the US, Finland and Canada, for a Master's thesis. It was found that:

"The results showed that high-tech startups failures relate closely to product and market challenges (product timing difficulties, product design problems, improper or absence of selling strategy/distribution channels, and small market size), financial problems (initial undercapitalization and debt burden), and management issues (lack of competent teams and human errors). The study showed that a wide range of factors leads to the failure of high-tech startups. Therefore, founders and personnel working in these high-tech startups should pay attention to the identified areas to minimize the chances of failure."

Indeed – attention must be paid. The causes of startup failure are known, persistent, consistent across countries, and individually almost fatal. Entrepreneurs – pay attention in advance.

Pisoni et al.[8] reviewed a large number of empirical studies of startup failure. They find:

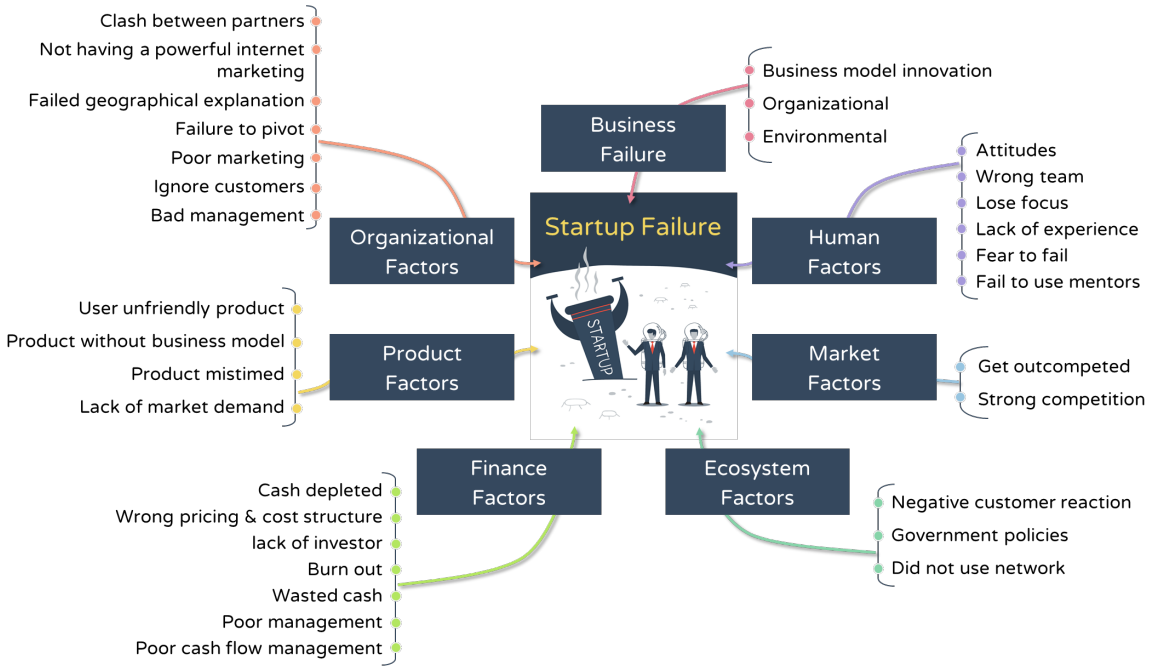
"...74 papers focusing on new ventures' failure have been reviewed and analyzed to identify the main causes of failure. In doing so, we identify four main categories of causes of new venture failure. Namely, I) resources, with a specific focus on human and financial capital; II) strategic/managerial decisions; III) product-related aspects; and IV) contextual/environmental-related issues."

The authors, in this study, place special emphasis on the role of 'resources' [5] ["resources are a key explanatory variable in explaining ...why new ventures fail", p. 59]. Resources, specifically cash, regularly top lists of KFF's.

Poland might be expected to differ somewhat in the basic causes of startup failure, as a newly emergent economy. Miziolek[9] finds that poor sales and marketing are more crucial in Poland than in the US. But running out of cash was not significant. Problems with the 'right team' were widespread. Loss of focus was a key failure factor; external grants actually were harmful to the odds of success, while 'skin in the game' (founders' own money) improved focus. It is very important that country-specific key failure factors should be studied, compiled and taken carefully into account.

Akter et al.[10] focus on platform startups -- a business model that creates value by connecting people (Facebook, Uber, Alibaba). Most platform startups are digital in nature. Akter's Figure 3 (see below) is highly instructive, worth viewing by every would-be entrepreneur – because it shows visually the complexity of launching a successful startup, and the many ways that lacunae (gaps, errors, missteps) can be fatal. The document compiled by CB Insights – 386 post-mortems of startup failures[11] provides rich, brief first-person narratives that underly Figure 3.

Figure 3: A map for the Failure of Startups



Source: SNI team after Akter et al.[10] , p. 448

Fatema et al.[12] focus on software startups. Their list of key failure factors almost exactly corresponds to other such studies, indicating that software is no exception: "lack of customer validation, not the right team, lack of a business model, lack of project management, failure to meet market demand, running out of cash, out-competed in the market".

Forestalling Failure

There are at least two ways to anticipate and forestall startup failure.

Maital & Shein[4] propose an exhaustive pre-launch checklist, or protocol. They use the analogy of the pre-flight protocol, or checklist, used by commercial airline pilots.

No flight takes off without pilots carefully reviewing a long list of KFF's, including a walk-around the airplane. They argue that startup entrepreneurs need to conduct a similar pre-launch protocol 'walk around', to anticipate in advance key factors that lead to failure. By doing so, the odds of success are improved – just as pilots ensure the odds of a safe flight by careful preparation and anticipation.

Akter et al.[10] list key success factors for software startups, guiding entrepreneurs preparing to launch:

Successful software startup founders should possess some distinct characteristics to translate an innovative, market viable idea into a successful product with commercial value. These techno-professionals are often driven by impact, resulting in passion and commitment. They are committed to stay on course and stick to the chosen path. They possess an ideal balance between technical and business knowledge, required for management and product development. They also exhibit the right mentoring relationships with employees to elevate motivation, commitment and performance. They often employ Lean Startup principles by leveraging domain specific business knowledge to raise funding in order to achieve next set of key milestones. Additionally, these people often make well thought adjustment, keep their head down and have patience to adjust the mismatch between expectations and reality."

A second approach is found in Schultz[13]: Mentoring. Mentors are seasoned professional who "share their experience with neophytes who are thrown into a lot of tough situations" (p. 1). They note famous episodes of mentoring in history: Aristoteles, who mentored Alexander the Great; Del Verrocchio, who mentored da Vinci; and Isaac Burrows, who mentored Isaac Newton. Startup entrepreneurs are, almost by definition, neophytes who lack long experience; the experience deficit can be resolved by enlisting mentors who have such experience. This is the primary motivation for establishing accelerators, where startups can acquire valuable mentoring.

Conclusion

Understanding that startup entrepreneurship, driven by disruptive innovation, is inherently risky, with low odds of success, must not imply a fatalistic approach to accepting those low odds. High failure rates are not set in stone, as many seem to believe. The odds of success can and must be improved.

The best way to minimize the risk of failure is pre-launch advance preparation – following the same procedure airline pilots pursue, in pre-launch checklists. In our experience, startup entrepreneurs are driven by passion, romance and the excitement of creating new value for society. Often, the high energy their passion generates can overshadow the dogged, methodical mindset needed to adequately prepare and implement world-changing ideas.

Why and how startups fail is very well known and widely studied. Anticipating in advance, planning and preparing, can prevent or at least mitigate failure. We have found that often, entrepreneurs do not respond with patience to our exhaustive checklists.

Perhaps a long pre-launch protocol is much like bad-tasting medicine. It is unpleasant – but it can keep us alive and well.

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