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The Co-Founder Dilemma: Calculating the Co-Founder Equity Split

A model for “fair” equity distribution for startup founders

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Startup founders who avoid tough equity negotiations during the early stages of the startup and quickly jump to equal splitting may fail to understand strengths of their founding team members and their expected contributions to the startup. Equal splitting may also be a sign for investors that the founding team lacks entrepreneurial negotiation skills. Multiple research and reports have shown that equal splitting can lead to such unpleasant consequences such as lower pre-money company valuation and less stable startup performance.

The overall high-level objective through this master thesis is to help future startup founders understand the impact and avoid common pitfalls associated with equal division of equity. This master thesis analysed a very simple but effective equity split solution (which is co-developed by the author of this master thesis) based on the three conceptual pillars:

1. Fairness: To understand the best equity split for the founding team based the current situation of the startup.
2. Powerful: Discover the strengths of the founding team.
3. Strategic: Turn uncomfortable equity negotiations into a strategic teamwork.

Founder Equity Solution ("FES") model discussed in this master thesis is based on an algorithm that calculates shares of equity for each founder based on information (selected answers) provided by the users. The quality and precision of the calculated equity split depends on the quality and precision of the answers given. The algorithm used in the model is based on research findings and statistical data.

The master thesis is able to highlight the importance of equity in the startup, why equity distribution could be crucial factor in the long term success of the company, an equal-equity split or 50-50 split is almost never a good solution to split the equity, trust and fairness are the key factors to consider in the equity split, a simple model to share the equity split, key considerations based on your startup prior to deciding on the equity distribution etc. The master thesis is driven mostly by relevant case studies, solutions available and user feedback. Extensive end-user validation is done to make the solution applicable to most startups especially in the early stages of the startup.

Keywords

Founder, Founder Equity, Startups, Entrepreneurship, Entrepreneurship Ecosystem, Vesting, Startup Valuation

Preface

Doing this master thesis has been fun and informational at the same time. I hope this thesis would help the current and future startup founders to understand the value of equity in a startup and the model described in this thesis would help them as a starting point for equity distribution.

I would like to take this opportunity to thank all the people that helped me in the research to compile this master thesis. First and foremost, I would like to thank the Founder Solutions' co-founder, Ms. Evgenia Prozorova, who was the brains behind the model discussed in this thesis and her prior consulting background specializing in equity plans was the major driver in updating the model. I would also thank Mr. Janne Ojanaho, a technologist by profession but possesses very sound business and analytical skills. His contribution to the next version of the model (currently in progress at the time of writing this thesis) has been immense.

I would also like to specifically thank all those startups and their founders who spared their valuable time for the interviews and/or user tests. I am sincerely grateful to them for sharing their truthful and illuminating views on a number of issues related to the thesis topic. Additional thanks to Mr. Ilkka Lavas for his valued mentorship during the early phase of the solution development and Mr. Matthew Bailey for his continued inspirational guidance regarding business development and in general.

My special thanks go to Thomas Rohweder for his commitment in the program, support and good advice for this Master's Thesis.

Last but not the least, I would like to thank my wife. She was always there cheering me up and stood by me through the good times and bad.

Pankaj Saharan

Espoo, Finland

27th May, 2015

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1 Introduction

1.1 Background

According to startup guru Steve Blank, “A startup is a temporary organization designed to search for a repeatable and scalable business model.” [1] As per the 2013 United States Report called Global Entrepreneurship Monitor [2], while 400,000 new businesses start every year, 470,000 small business will shut their doors in the same period. That’s a net loss of 70,000 businesses a year in US alone. The statistics for web or tech startups in particular are even worse. According to multiple sources, the failure rate for new tech startups is around 90%. And this failure typically occurs within the first 120 days. [3]

While there are numerous reasons analyzed over the years regarding why startups fail so early in the startup lifecycle ranging from founders unable to make enough progress to access the kind of capital needed to assemble an amazing team, idea not validated on time, no proper planning to scale, customer segment identification etc., the author of this master thesis got particularly interested to explore a niche of the multitude of reasons for failure of the startups. The problem area is to explore the basis equity distribution between the startup founders during the early stages of the startup and what impact could the equity distribution have on the overall success or failure of the startup. Founder equity (same as founder shares) is how much of the startup or company (or soon-to-be company) belongs to its founders.

1.2 Problem statement

Normally the startup evolution process goes like this: a person (later becomes the founder) comes up with an idea which typically solves a user problem. The idea could be disruptive i.e. the novice solution that does not exist yet to an existing problem, a different or easier way to solve an existing problem, a totally new problem that has been discovered yet and an initial solution etc. Typically the idea is then validated against the market segment i.e. who are the user groups impacted by the problem, is the problem critical to be fixed, is the market segment big enough to implement this solution and so

on. After the idea validated to solve a relevant problem, big enough user segment, initial analysis of customer willingness to pay for the solution etc., a business is born.

To take the next step of implementing the idea and further business validation, normally a single founder is not enough and typically need one or more co-founders who bring complementary skills but share the long-term vision. The co-founders could be known people like family members, school colleagues, friends, previous work colleagues etc. or could be totally unknown i.e. from a conference, hacking competition, co-founder meetups etc. Choosing the right co-founders is one of the most important decisions that the founder(s) have to make, especially during the early stages of the startup.

After the founder finds the suitable co-founders for his business idea to bring confidence to take the next step of initial product/service and business development, a startup gets founded with a founding team. This business relationship could be informally considered as a professional marriage between the founders of the startup. Many startup experts have repeatedly stressed on the importance of the founding team as the most crucial element of the success of any startup irrespective of the startup domain.

As a first step during legal establishment of the startup and most commonly as the first decision that they together make as founding team in the journey of their startup, they decide on the sharing of equity between themselves i.e. how many startup shares that each founder will own. There is no right or wrong way of doing the equity split between the co-founders but the trivial, most-used and easiest way is to divide the equity equally between the startup founders. This is commonly known as equal-equity split or 50-50 split. This is done by simply following the formula $1/n$ where n is the number of founders of the startup.

This typical cycle of a founder having the idea to the founders doing the equal equity split is shown in figure 1. Though the equal-equity split is the most common and easiest way to divide founder equity, the author is of the opinion that equal-equity split is not optimal for most startups. The typical consequences of an unfair equity split include:

- Less stable startup performance
- Lower pre-money company valuations

- Loss of confidence among investors
- The problem gets harder and more expensive to solve with time

As per Harvard Professor, Noam Wasserman in his book *The Founder's Dilemmas* [4], startup founders often describe their equity-split negotiations as "war," "exasperating," or "stressful". Also based on his research, 65% of startups fail due to problems within the management team. Dan Shapiro in his entrepreneur blog strongly states that "If you have equal shares, you did it wrong." [5]



Figure 1: Typical startup cycle from idea to equity split

1.3 Motivation for the research

The main motivation of the research came through the author's bad experience of equal equity split with his co-founder during the days of his first startup. When the author looked around, unfortunately he was not alone and the problem was much spread much wider.

One such example is about the founders of Zipcar adopted the traditional model of equal splitting the equity. [6] Cofounder Robin Chase had heard a horror story from a friend about how the equity-split negotiation had derailed the friend's startup. Eager to avoid that outcome, Robin proposed to her cofounder a 50/50 split right after they had founded the company (Hart, Roberts, & Stevens, 2003). The cofounders quickly shook hands and

accepted the equal split. Robin breathed a sigh of relief that they had avoided the high tensions that often accompany an equity-split negotiation. Only later did she realize that the rushed negotiation had compromised the team's longer-term effectiveness.

The contrasting story is about Ockam co-founders and their decision to split unequally. [7] The decision was very logical because, for instance, one co-founder had worked for the other one for seven years as a junior before they decided to start a company. It was clear that their contributions to the startup wouldn't be the same. And they did a great job of evaluating different scenarios of how much they would be involved with the startup (what if one of the founders wouldn't quit his full-time job to work for the startup and so on) and identified different equity splits for every scenario.

The author got interested to dive into the wide problem of equal equity split by founders, what leads the founders to divide equity equally, what are the impacts of equal equity distribution, what are the factors that should be considered while splitting equity etc.

1.4 Objectives

Multiple research and reports have shown that equal splitting can lead to such unpleasant consequences such as:

- lower pre-money company valuation
- less stable startup performance

The main reason for such behaviour is that founders who avoid tough equity negotiations and quickly jump to equal splitting may fail to understand strengths of their founding team members and their expected contributions to the startup.

Equal splitting may also be a sign for investors that the founding team lacks entrepreneurial negotiation skills.

The overall high-level objective through this master thesis is to help future startup founders understand the impact and avoid common pitfalls associated with equal division of equity.

In addition, this master thesis aims to:

1. Analyse the impact that the equal slitting of equity during early stages of the startups could have to the success or failure of the startup.
2. Collect and analyse the factors that existing founders use as a basis for the founder equity split.
3. Study the equity split models available and how are they used by the founders.
4. Study the equity split model using author's co-developed solution – Founder Equity Solution (FES) [8] (mainly based on Noam Wasserman's research in his book "The Founder's Dilemmas". [4])
5. Gather the feedback of the model and measure against the gathered factors for equity split consideration, discuss the model's applicability through the web solution and formulate the next steps of the model.
6. Discussion based on the feedback, recommendations for future startup founders regarding equity split, validity of the model etc.

2 Research Approach

2.1 Research design

The research starts with defining the research objective to define the problem areas that this thesis will tackle. After defining the research objective, the existing literature review is done in the theory section to study the existing concepts related to entrepreneurship in general and to drill down to founder equity specific concepts. The literature will also review the co-founder issues in general in addition to founder equity issues.

The research then will do the current state analysis by objectively analysing the current equity split models and solutions available in the market. Each solution will be critically analysed to deduce the underlying hypothesis used for equity split. In addition, pros and cons of each solution will be listed. After the current state analysis, a sample model is suggested for equity split on the basis of data collected and analysed from the online survey.

The feedback of the model is then collected through founder interviews and direct anonymous data collected from the end users of the model from the website. The feedback is then used to recommend the model updates for the equity split.

In the end, further analysis of the results, conclusions and recommendations are made for the future to benefit the founders. The research design is shown in figure 2.



Figure 2: Research design of the master thesis

2.2 Research data

2.2.1 Data collection

The main sources of data collection for the master thesis include:

1. Online survey which is conducted before the model formulation
2. Founder face-to-face interviews which are mainly conducted to get the direct feedback in practice while using the model
3. Online tool usage statistics and end user feedback after using the model on the website. [8]

The gathered data is consolidated, analysed and conclusions are made for the validity, recommendations and future development of the model. The overall data collection process is highlighted in figure 3.

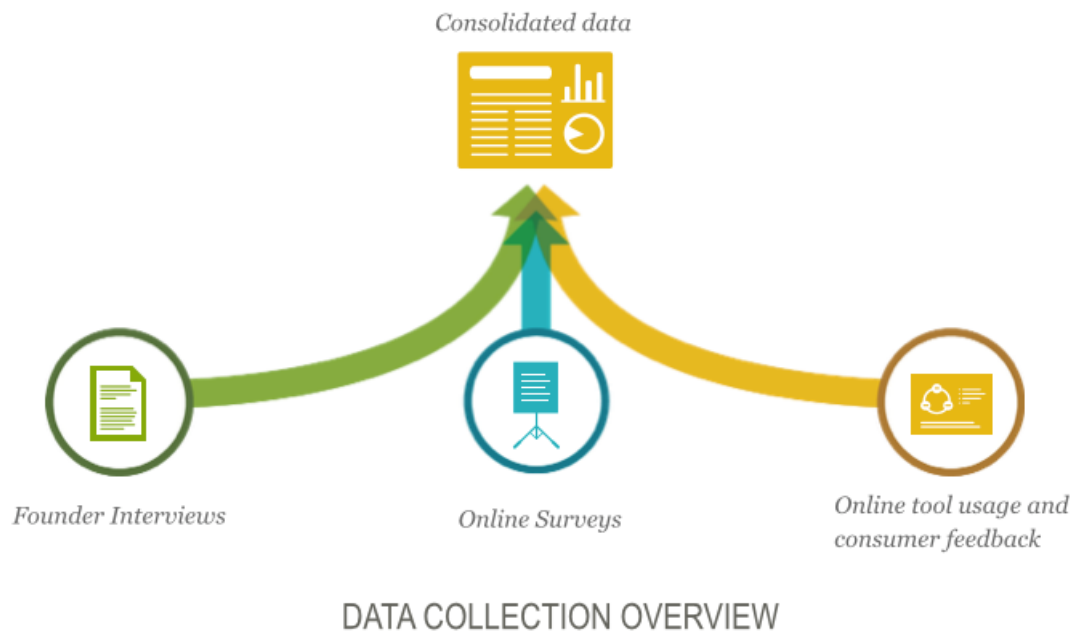


Figure 3: Data collection overview of the master thesis

2.2.2 Data analysis

After the data is collected from multiple channels including interviews, surveys literature etc., the data will be consolidated and analysed to make conclusions and future recommendations. The overall data analysis process is shown in figure 4. The emphasis phase in the process highlights the evaluation, prioritization and weighing of the factors deduced from the analysed data for the equity split model.



Figure 4: Data analysis overview of the master thesis

2.3 Research Limitations

2.3.1 Research scope

Since there are a lot of factors that could impact the equity distribution among founders in practice and in addition, there is no right or wrong way to divide equity between founders, it's not possible to do an extensive research in this master level thesis. The scope of the research in this master thesis is carefully chosen to include:

- The master thesis main scope is to study key factors that impact the equity distribution among co-founders of a startup and come up with a model which is useful for the startup founders.
- The model discussed in this master thesis is primarily targeted for a startup in the early-stages i.e. there is no previous history between the founders and not much work has already been done.
- The equity distribution model is developed to include only four co-founders in the equity split calculations. There might be startups where more than four founders are needed but in general, four co-founders should be enough in the early stage to avoid disagreements, faster decision making etc.

- The equity distribution model is primarily developed with keeping technology startups in mind. The roles in the model are assigned similarly e.g. Chief Technology Officer (CTO). But in general, the model should be applicable for every founder irrespective of the industry even though each industry should have different roles.
- The master thesis only focuses on “static” equity split i.e. the equity distribution remains valid until further changes e.g. changes related to founding team, investment rounds etc. and the equity does not change dynamically e.g. based on performance of founders etc.

2.3.2 Reliability & Validity

Founder Equity Solution ("FES") model [8] discussed in this master thesis is based on an algorithm that calculates shares of equity for each founder based on information (selected answers) provided by the users. The quality and precision of the calculated equity split depends on the quality and precision of the answers given. The algorithm used in the model is based on research findings and statistical data. It works well for most startups.

However it's understandable that each startup is unique and each founder may have personal strengths or roles in the startup not included into our model. Hence, it is suggested that the end users use the equity split calculated in the model as a starting point for further equity negotiations with their co-founders, rather than a "set-in-stone" decision. For the avoidance of doubt, equity calculations provided by the model in the website [8] are not legally binding.

3 Theory

3.1 Introduction of startup ecosystem

Fostering entrepreneurship has become a core component of economic development in cities and countries around the world. The predominant metaphor for fostering entrepreneurship as an economic development strategy is the “entrepreneurship ecosystem.” [9]

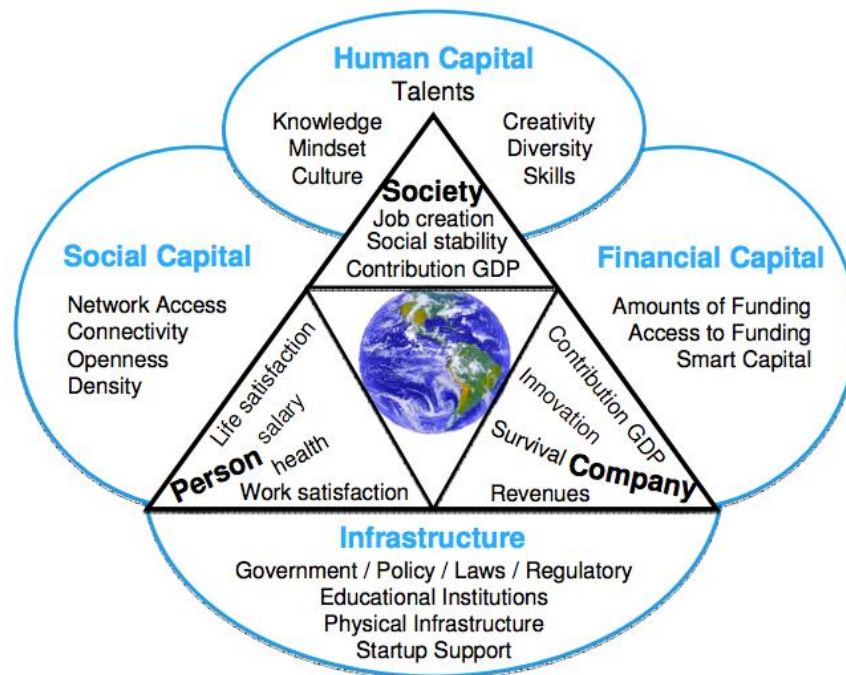
Also, as mostly incorrectly understood, job creation is not the primary objective of fostering an entrepreneurship ecosystem.

Entrepreneurs are key drivers of economic and social progress. Rapidly growing entrepreneurial enterprises are often viewed as important sources of innovation, productivity growth and employment (small and medium-sized enterprises account for a high percentage of all jobs in emerging economies). According to the World Economic Forum report [10], major differences in entrepreneurial ecosystems exist from one region to the other. The report also shows that entrepreneurs around the globe consider three ecosystem pillars as the most important ones for their companies' growth: accessible markets, human capital/workforce and funding & finance.

Yas Motoyama from the Ewing Marion Kauffman Foundation, and Karren Watkins from Washington University [11], documented the resurgence of entrepreneurial activity in the area of St. Louis by reporting on the collaboration and local learning within the startup community. The entrepreneurial activity happened both between entrepreneurs and between organizations that provide support, such as mentoring and funding, to entrepreneurs. As these connections deepen, the strength of the entrepreneurial ecosystem grows.

Peter Vogel [12] visualised the core elements of a healthy entrepreneurial ecosystem in figure 5.

Healthy Entrepreneurial Ecosystems



© The Entrepreneurs' Ship

Figure 5: Healthy Entrepreneurial Ecosystem [12]

From the Startup Founder's or an entrepreneur's perspective, the startup ecosystem should provide him with the necessary basic foundation to enable and encourage him to make his leap into the world entrepreneurship to take his idea forward. The key players involved in a startup ecosystem that should be ideally easily accessible to entrepreneur are highlighted in figure 6.



Figure 6: Key players in a startup ecosystem

3.2 Role of a founder in a startup

Noam Wasserman proposes the following definition of a founder: “Individuals who start new organizations to pursue opportunities.” [7] Another definition defines founders as individuals who create, execute and invest in ideas to turn them into startups.

Noam Wasserman observed that only 16.1% of the startups he studied were solo - funded. Teams of multiple founders have different dynamics than single-founder startups, according to Martin Ruef in his book, *The Entrepreneurial Group*. [13]

Founder is a core team member in a startup. Usually a founder is one of the originators of a startup, a person who puts up the most risk, carries the weight of startup idea on his or her shoulders, and gets a share of founder equity and, typically, works for no salary at least before the first outside investment round. Founder status is received through an agreement with co-founders or with permission from the board of directors, investors or shareholders of a startup company. The word entrepreneur and founder has been used interchangeably in practice. Figure 7 shows the growth of entrepreneurship with some

key numbers of growth in entrepreneurs, number of startups per month in US, supporting organizations like incubators and accelerators and online learning for entrepreneurship as a subject.

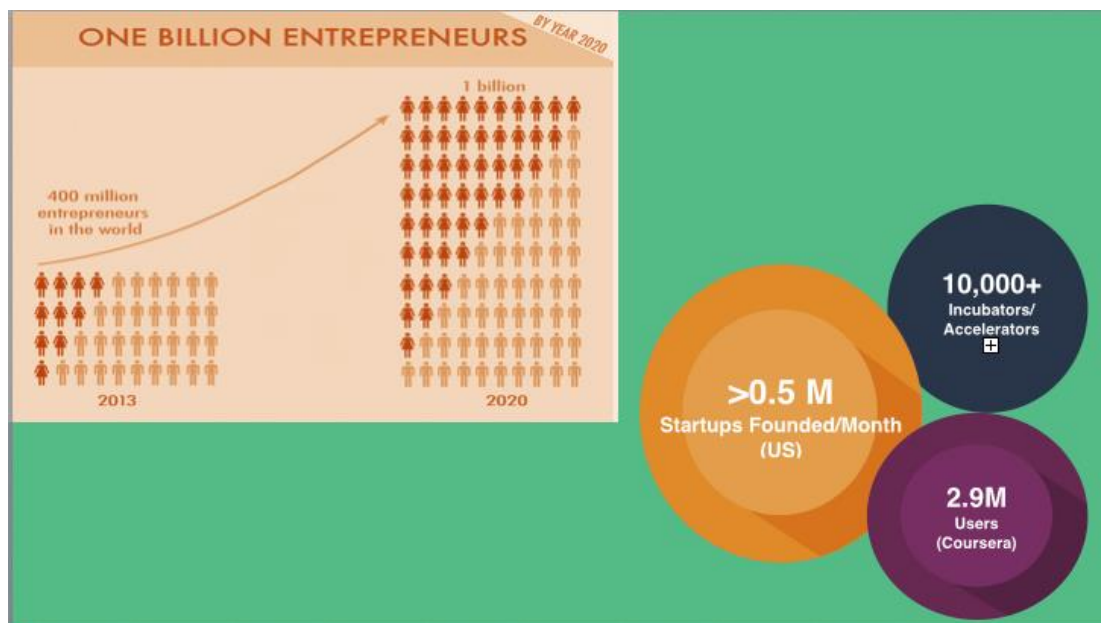


Figure 7: Continued growth of entrepreneurship

Co-founders

In most cases, only one founder is not enough to take the idea forward – validating and executing on it to become a viable business in the form of a startup. Also, the man unknowns that lie ahead, during the beginning stages of a startup especially, demands a need of a person who bring in complementary skills, speed up the execution, share the responsibilities, share risks of the unknowns, share the vision even in case of pivoting from the original idea is needed etc.

Choosing the right co-founders is one of the most important decisions that the founder(s) have to make, especially during the early stages of the startup. The founding team has a direct impact on the success or failure of a startup in the long run.

It has been argued that that founders carry the potential value of their startup. [14]

Initially the main assets of a startup are its founders, so some of the important early choices concern the agreements amongst founders. Equity distribution is one such decision that the founders need to take in the early phase of the startups.

Ideas & Ownership

A solo founder will have 100% of the idea (keep in mind, they are able to execute on it). In case of multiple founders, the idea could be shared between the co-founders. The relative ratio of idea contribution in a startup having multiple founders is an abstract concept and it does not necessarily translate easily in reality, but it is important to realize that an idea is not necessarily owned by one founder. A startup idea is a weighted sum of the initial ideas brought by each co-founder.

According to Startup Genome report [15], solo founders take 3.6x longer to reach scale stage compared to a founding team of 2 and they are 2.3x less likely to pivot. Balanced teams with one technical founder and one business founder raise 30% more money, have 2.9x more user growth and are 19% less likely to scale prematurely than technical or business-heavy founding teams.

Particular Scenario: The First Employee(s)

An employee is a person hired on salary. First-hires can have some significant control over the initial idea and could be a part of the founding or top management team - the main difference is that an employee is paid i.e. they are capturing monetary value. Early employees are key to the success of a startup, but they should be distinguished from the co-founders. There are cases where early-stage employees could be considered founders, typically when they decide to work for free (investing their time and creating “sweat-equity”), or for example, leave their well-paid job taking a significant risk etc., while having a significant control of the startup’s core idea.

3.3 What is startup equity and why is it important?

A decade of research done by Harvard Professor Noam Wasserman shows that equal splitting is associated with lower pre-money company valuations and less stable startup performance.

Founders who avoid tough equity negotiations and quickly jump to equal splitting may fail to understand strengths of their founding team members and their expected contributions to the startup. Equal splitting may also be a sign for investors that the founding team lacks entrepreneurial negotiation skills.

There are five most basic and most useful facts about founder equity to help you look at it in a new light before you split it with your co-founders.

- **It is an unlimited resource**

Founder equity is not a limited resource. It's an unlimited resource. It's growing along with your company. Don't be afraid to share equity with your co-founders, employees, advisers, investors. If you start working on an idea and own 100% of it – that's 100% of nothing. The idea has no value yet in the beginning. Value is created by people you'll be able to attract and inspire by your idea. If at the end you have 10% of equity that may be 10% of a billion dollar company. Something is better than 100% of nothing!

- **Treat it as remuneration**

At the very early stages of startup lifecycle founders are typically not paid salaries. Equity is then used as remuneration to the founders for the work they do. Similarly to remuneration, shares of equity should be aligned to founders' performance, their contribution to the project, even the actual time spent working on the startup.

- **No payouts, at least in the short-term**

In contrast to remuneration, however, equity is not "paid out". It is a promise for founders that they will get the right on future company profits, if there are any. While the company is being built and has no real value, the founding team may want to regularly review their fair division of equity to make sure each founder gets a share corresponding to what he or she did relative to other startup co-founders.

- **Fix it when there is funding**

The best time to get your division of founder equity fixed is when your startup is ready to raise funds or incorporate the company and use a real shareholder agreement. At that stage founders, if they take on executive roles in the company, usually start receiving salaries. From that moment on equity is a measure of how much control they have over the company and what is their share in the company profits.

- **Vesting is good for it**

Founder equity may be subject to vesting. Vesting means that although founders already have certain shares of equity assigned to them, they still need to “earn” them by staying with the company long enough (standard vesting schedule spans over 3 to 4 years). Vesting prevents founders who lose interest in the project and leave from walking away with half of the company – which is good for those who stay and continue working hard to get things done.

3.4 Vesting

It’s hard to overestimate the importance of vesting. If you are a founder you need to get used to this concept as early as possible in your entrepreneurial career. Otherwise, one may find himself in a situation Mark Zuckerberg talks about [16]: He didn’t know what vesting was at the point when he started the company, and it cost him billions of dollars because of his co-founder Eduardo Severin.

No matter how you divide the founder equity, those shares should be subject to vesting restrictions, so that until the shares are “vested,” the founder does not fully own them. This is important because it prevents a co-founder from leaving after only a few months, and yet retaining a huge part of the company. The last thing the founding team will want is for someone to hold a lot of equity and no longer be contributing to the startup’s success.

Founder vesting is founder friendly. It keeps the balance between working founders, who build the company up, and absent founders, who leave early. In fact, don’t wait for an investor to highlight it – get it done during the incorporation of the startup. Also remember to pair it with acceleration on change of control.

The notion of vesting comes from a legal universe. Vesting is a common provision in equity schemes. Vesting means receiving the right (to the shares of equity).

To put it simply, if founders agreed to divide equity with a vesting condition, what they get at the beginning is unvested equity, which is just a promise. A promise that they will get their shares of equity as agreed only if they certain vesting conditions are met. The most common vesting condition is to stay with the company long enough for the equity to vest. Vesting conditions may include various milestones important for the company. An example would be getting 1 million of registered users – if this happens, founders may agree to have accelerated vesting of 25% of their shares of equity.

Vested shares are the shares the founders already earned. Founders can walk away with those shares if they decide to leave the company. That will be fair, as they received those shares for all their hard work. Vesting conditions could be based on time, milestones or other combinations. Most common vesting period is 4 years i.e. 25% of shares vested per year from date of starting.

Vesting is important even for teams with unequal equity splits. In fact, vesting has little to do with equal or unequal splitting. Imagine there are three founders, they split startup equity 45%-35%-20% and get to work. In a month a founder with 35% loses interest in the project and leaves, taking 35% with him! The other two work hard, get VC money, become famous and in 6 long years launch an IPO. Of course, over those years 35% get diluted to, say, 7%, but that's 7% of a billion dollar company – not bad for a month of work!

The above is a hypothetical example, of course, but if there were a vesting provision in place the founder who left in a month would get no equity. This would also be fair to those who stayed and made their company a huge success.

3.5 Equity Dilution

During the launch of the startup, the founders own the entire pie of the equity between themselves. But, it's inevitable that your shares will be diluted as the company grows in

order to attract employees and investors, and there are very few examples of successful founders owning 100% of their companies at the time of a sale or IPO.

When a startup raises Series A funding, the startup commonly issues additional shares of stock that will go to the investors, and typically those investors take anywhere from 25% to 50% of the company. In later funding rounds, they may take a smaller percentage, though depending on the terms the startup negotiates, it can still be as much as in Series A. Each time, the founder shares will be diluted accordingly.

The startup might also need to leave a pot of equity for future employees, particularly early-stage ones. In general, when the founders are setting up equity at the beginning, it's a good idea to leave between 10% and 20% in the pie for employees. If the founders plan on raising funding at some point, the investors of the startup will require to have this—and if it's already in place, the founders won't have to dilute your shares further to make room for it.

Figure 8 shows the typical dilution of founder equity during investment scenarios. In the first equity circle, the company is divided between couple of founders, friends/family/fools (FFF) and an angel investor. Before the investment round by a venture capital firm (VC), the company releases additional shares at a higher value which is called pre-money valuation. This is shown in the second pie of the figure. After the investment round is closed and shares to the VC are allocated, the original founder shares are diluted but the value of the shares have grown significantly. This is visible from the bigger size of the equity pie in the last image in the figure. The valuation of the startup after the investment round is called post-money valuation i.e. post-investment round value of the startup.

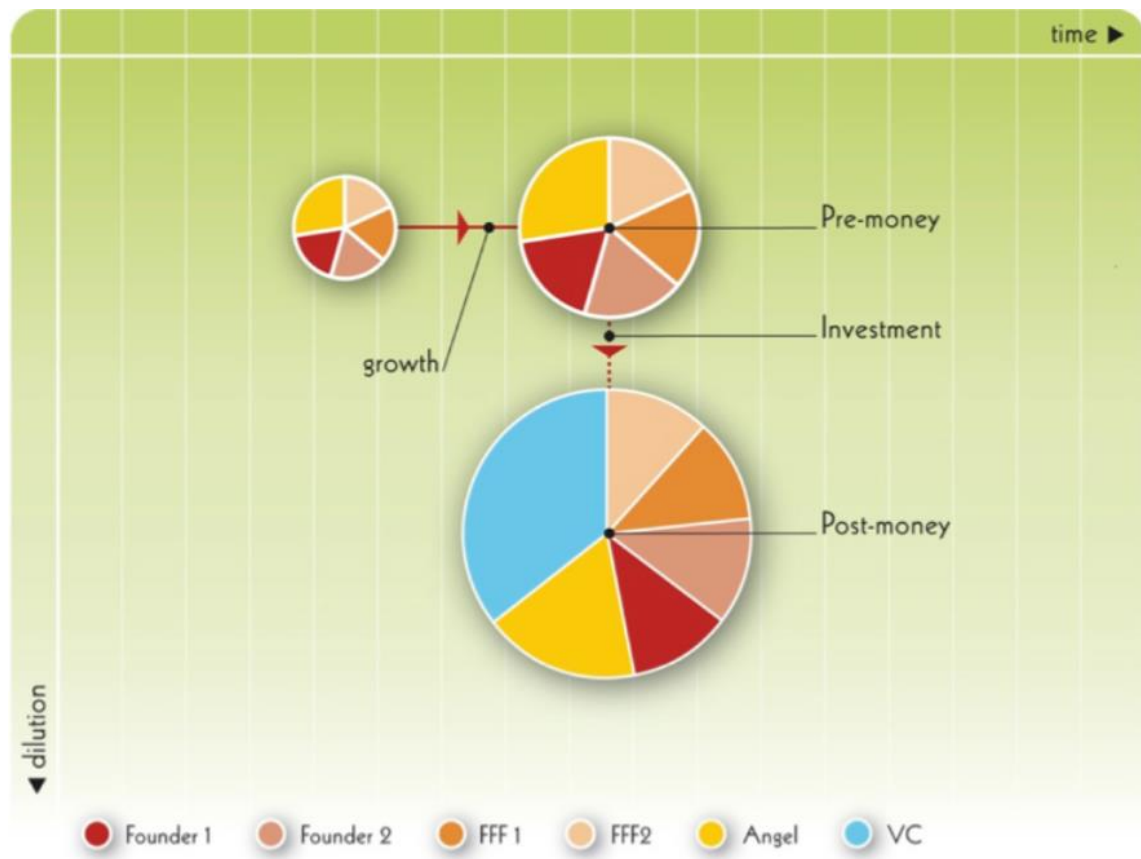


Figure 8: Dilution of Founder Equity during investment rounds [17]

3.6 Real-life example of co-founder issues - Facebook

There are multiple real-life examples of conflicts between the co-founders and how it impacted their startups in the long run. One of the most famous one is from one of the most successful companies of the world – Facebook.

Zuckerberg was from the very beginning a true leader of the project destined to become Facebook. He was the “idea guy”. He gathered the team around himself and inspired them. He wasn’t focused on money, but “content to make something cool”. His idea and execution attracted great mentors and investors.

Zuckerberg’s early team included Eduardo Severin, who knew business stuff and who gave Mark Zuckerberg \$15,000 to pay for the servers needed to run Facebook site, and Dustin Moskovitz, Facebook’s first CTO.

At the beginning Facebook shares were split between them, with Zuckerberg owning 65%, Severin owning 30% and Moskovitz owning 5%.[18]

As per the movie, The Social Network, Severin made some false steps failing to perform his duties at the company and even trying to promote his side-startup at the expense of Facebook. Luckily, his share was smaller and Mark Zuckerberg had enough control to do things his way and fix the problem.

What would happen if their team had divided shares equally at the start, with each of them owning 33.3%? Zuckerberg then wouldn't own the majority of shares and wouldn't be able to force Severin out of the company. And Facebook would probably never become the successful giant we know today.

This story again goes to prove that the equal equity split might not be the optimal solution for a startup.

4 Current State Analysis

4.1 Current equity split models

There are multiple equity split models and solutions available on the internet. Some solutions are free while others are paid. For this master thesis, the author selected four existing solutions to review and analyse based on the following factors:

- Nature of equity split
 - Static equity split
 - Dynamic equity split
- Usage mode
 - Online or Internet based
 - Offline or excel based

Figure 9 shows the placement of the four commonly used founder equity distribution solutions based on the nature of equity split and the usage mode.

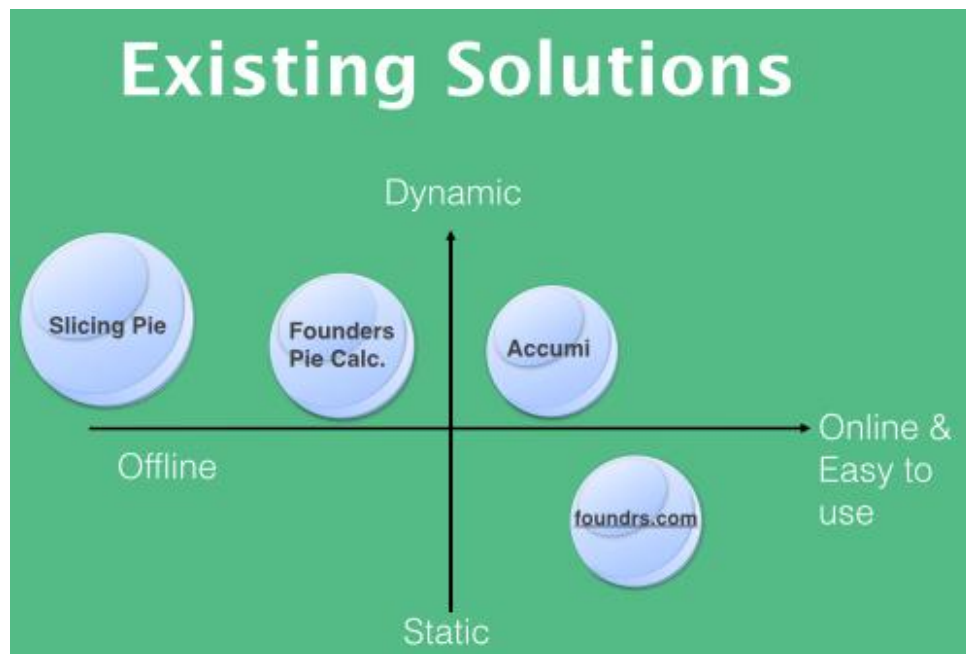


Figure 9: Available equity distribution solutions

4.1.1 Foundrs.com

The startup equity calculator provided by Foundrs.com is one of the simplest yet strong equity distribution solution available. [21] It allows up to four startup founders to calculate the equity split within themselves by answering simple questions. The questions seem comprehensive enough to capture the core factors related to the equity distribution. The questions asked from the founders are highlighted in table 1.

The analysis done by the author of the master thesis finds that the model internally works by assigning a weight to every answer provided to each question by the co-founders. Each answer's weight is added up in the end equity calculation against a specified role of the founder based on the answers i.e. CEO, CTO, CFO etc.

The model is quite easy to use and deliver very good results based on the criteria of questions but there are some shortcomings as well. The weights assigned to values of answer for each question are debatable but the model clearly lacks is the handling of the

monetary part which is the key criteria for allocating equity in early stage startups. The calculator also does not handle more than four founders which in most cases should not be a problem but certain startups might require more than four co-founders. Another limitation is that the model seems to work for early-stage startups only i.e. before the product release.

| | |
|--------|---|
| 1 | Who is the CEO? |
| 2 | Which founders are coding most of the site/app? |
| 3 | Who had the original idea and told the others? |
| 4 | If you could magically hire a few developers, would one of the founders become their manager, and if so, who? |
| 5 | Which founders are working part-time and will join full-time once you get funding |
| 6 | If this founder left, it would severely impact your chances of raising funding |
| 7 | If this founder left, your development schedule would be severely impacted |
| 8 | If this founder left, it would compromise your launch or initial traction |
| 9 | If this founder left, it would probably prevent us from generating revenue quickly |
| 1 0 | Who writes the blog and the marketing copy that goes on the site? |
| 1 1 | Who comes up with most of the features? |
| 1 2 | Who has a spreadsheet with budget estimates or simulations |
| 1 3 | So far, who pays for basic business expenses like printing business cards, web hosting? |
| 1 4 | Who pitches investors? |
| 1 5 | Who is well connected with your target industry, providing introductions to potential customers, journalists and influencers? |

Table 1: Questions of Startup Equity Calculator from Foundrs.com

4.1.2 Founders Pie Calculator

The Founders' Pie Calculator [22] by Frank Demmler, an Associate Teaching Professor of Entrepreneurship at the Donald H. Jones Center for Entrepreneurship at the Tepper School of Business at Carnegie Mellon University invented an interesting way to divide equity between founders in a way that is both logical and fair. The calculator provides a way to quantify the elements of the decision making process behind the equity split between founders.

The elements of the decision making process as per the calculator are:

- Idea
- Business Plan Preparation
- Domain Expertise
- Commitment and Risk
- Responsibilities.

The idea behind the calculator is to come up with a weight for each of these five elements and then assign a value to each founder on a scale of 0-to-10. Then one can take the weight and multiple it by the founders score to come up with the weighted score, from which the percentage of equity can be calculated.

Table 2 gives an overview of an example scenario of how the Founder's Pie Calculator works in practice. [23]

| | WEIGHT | FOUNDER 1 (CONTRIBUTION) | FOUNDER 1 (WEIGHTED SCORE) | FOUNDER 2 (CONTRIBUTION) | FOUNDER 2 (WEIGHTED SCORE) |
|-------------------|--------|-----------------------------|----------------------------------|-----------------------------|----------------------------------|
| Idea | 7 | 10 | 70 | 3 | 21 |
| Business Plan | 2 | 3 | 6 | 8 | 16 |
| Domain Expertise | 5 | 6 | 30 | 4 | 20 |
| Commitment & Risk | 7 | 0 | 0 | 7 | 49 |
| Responsibilities | 6 | 0 | 0 | 6 | 36 |
| Total Points | | | 106 | | 142 |
| % of Total | | | 43 % | | 57 % |

Table 2: Example usage of The Founder's Pie Calculator

The model is quantitative in nature but has obvious shortcoming of too few parameters. The model could be used at any stage of startup though e.g. in case of a new co-founder joins the team etc. but the criteria seems to be based on too few of parameters and does not take into consideration e.g. money invested, time allocation, IPR value

etc. Also, the calculator is static i.e. based on an excel formula and does not provide an online interface for use.

4.1.3 Slicing Pie

Slicing Pie model [24] is developed by Mike Moyer who is an entrepreneur himself and has started a number of companies himself. Slicing pie model outlines a simple process to get your business started even if you don't have a lot of cash. In the early days you can use equity to get the things you need to start your company including help, equipment, supplies, rent and even credit.

Slicing Pie explains how to calculate the fair amount of equity to the right people. In his book "Slicing Pie: Fund Your Company Without Funds" [25], Mike Moyer explains the tricks of the trade including:

- Calculating a theoretical value of your company
- Assigning value to the various inputs to your business
- What to do when a founder leaves your company
- How to handle equity when you have to fire someone

Slicing Pie model relies on the fair market value of the various contributions made to a startup including cash, ideas, time, relationships, supplies, equipment or facilities. When people contribute any of these things to a startup, they are risking what they would have otherwise been paid for the same contribution to someone who had the means to pay. In other words, they are risking the fair market value of the contribution. Everything has a fair market value. The fair market value of time, for instance, is the salary a person would command for a certain type of work. The fair market value of an idea is a royalty on revenue. [26] The fair market value of a relationship is the commission on a sale generated, or a finder's fee on investment secured. For every contribution, there is an amount that someone, with the means to pay, would pay. Fair market value is easy to know, future value is impossible to know.

Using fair market value, the Slicing Pie model applies a standardized allocation framework that allocates "slices" in the company pie based on the fair market value of the

contribution and a multiplier for risk. A person's share is simply their slices divided by the sum of everyone's slices. It changes over time to ensure that everyone always has exactly what they deserve to have.

Below are the steps at high level for using the Slicing Pie model:

Step One:

Convert all contributions to "slices" by multiplying the unpaid portion of the fair market value of the contribution by a risk multiplier (I recommend two for non-cash contributions and four for cash contributions):

$$\text{Slices} = \text{Fair Market Value} \times \text{Non Cash or Cash Multiplier}$$

Step Two:

Calculate share for each individual:

$$\text{Individual's Share (\%)} = \text{Individual's Slices} \div \text{All Slices}$$

Step Three:

Allow the model to adjust over time so it stays fair. The model will always tell you *exactly* what each person deserves to have—no more and no less.

When the company can afford to pay people, it can—which will reduce or eliminate the allocation of slices. When profits are generated, a person's share determines how much they get!

Once equity is allocated, you need a mechanism for getting it back if things don't work out. When fixed equity splits go bad the result is usually absentee owners, unfair buy-outs and frustration. The Slicing Pie model has a recovery framework that determines how equity is recovered and how much is paid, if any, to departing employees. The model imposes consequences on the party that causes the separation. So, if an employee *chooses* to behave in a way that jeopardizes the future of the company, their slices would be subject to reduction or elimination if they quit or were fired. This forces

employees to think twice before making choices that have a negative impact on the company.

The model is quite comprehensive and is one of the leading models used for “dynamic” equity distribution. The model is still in its early stages but starting to get traction especially in the US where the legal aspects of a dynamic equity distribution starting to get handled by multiple lawyers. However the legal aspects are still a challenge in other parts of the world where dynamic equity distribution is still a novel concept and has not been tried out. The model has other challenges as well. The model takes into account the performance of each founders as the core basis of equity split i.e. the model is performance-based. There could be multiple corner cases e.g. what if one founder gets sick or goes for a long vacation, does his shares dilute during that period if other founders need to share the work? Similarly, if a new co-founder joins the team, does he need to buy his equity? Some people argued during conversations with the author of this thesis that it might be a good idea to have a base limit set for each co-founder and only certain percentage of the overall equity should be distributed dynamically based on performance-based models like Slicing Pie.

4.1.4 Accumi

Accumi provides a straightforward system for splitting equity among co-founders. It tracks what each founder contributes – time, money, tasks completed – and makes it easy to distribute equity according to accomplishments and expenses rather than guesswork and verbal agreements.

Accumi helps founders split equity in a way that maximizes team engagement. Instead of splitting equity up front, you split equity gradually over time. This ensures your pie chart accurately reflects the level of participation by each founder. Founders enter tasks and expenses into Accumi and the pie chart updates in real time. The awkward conversation as to "who gets what" is no longer necessary. With Accumi, your split is based on data, not gut-feel guesses or negotiating skills. Basing your split on data ensures fairness which is healthy for team dynamics.

As per the founder, Chris Pelling [27], Accumi provides a mechanism for startups to split equity in real-time. Founders earn equity as they complete tasks or pay expenses. With Accumi, your equity split is based on hard data instead of gut-feel or negotiations. It helps ensure a fair split and a healthy team dynamic.

The model is based on dynamic distribution of equity but is especially useful for founding teams that are working on multiple projects or have day jobs, and the level of participation in the startup is difficult to predict. The legal considerations and risks for a dynamic equity split model based on task-based equity are applicable for this model as well.

4.2 Basis of equity distribution

The value in a startup is all about tangible results, so there should be no equity value based on the idea alone. Thus the real discussion must start with who will be doing the work, providing the funding, delivering results and so on. Founders receive equity for what they bring to the table. How much of the company they own as a result of their contribution is purely up to the group to decide. Each co-founder should get equity for value, based on these key variables [19] [20]:

- **Previous startup experience**

Building a new business is quite different from an executive role in a mature company, so people from these backgrounds are often a liability. Value is embodied in previous success with investors, proven problem-solving ability, and having built and executed a business plan with minimal resources.

- **Business domain expertise and connections**

Textbook knowledge and academic degrees don't count much in startups. Value factors include your related product breadth and depth, relationships with thought leaders, key vendors and large potential customers. Building the product may be the easy part of your startup challenge.

- **Power**

Equity conveys voting power and control over the business. Generally, founders who intend to stay with the business long-term should retain the most control. Equal partners, while great in theory, can destroy a company when the partners don't agree and have no way to resolve fundamental disagreements.

- **Intellectual Property Rights (IPR) value**

In many cases, one of the co-founders may bring some work in progress that can be patented, trademarked or copyrighted. The idea is not intellectual property in the initial stages before it is implemented, so it has no inherent value. Every previous experience filing and winning a patent is a rare and valuable asset.

- **Time spent and responsibilities**

Co-founders who are only able to work part-time but with responsibility and major income sources elsewhere, don't carry the same risk as others with more operational responsibility. Less dependence on startup success, or more cash compensation, generally means less equity assigned.

- **Amount of money invested**

The founders typically invest the money from their own pockets to even validate the idea before the startup is born. The original founder carries the most risk during those investments as the risk is the highest at that early stage. So the equity should be considered relative to the value of the money invested by the founders during the early stages.

- **Timing, size and duration of contribution**

The earlier, bigger or longer the contribution to the company, the more equity a founder should receive.

- **Other tangible or intangible contributions**

A founder may contribute in many ways. Some bring patents or product ideas. Some bring business expertise and ongoing work to build the business. Some bring capital. Some bring connections. Some may bring big names or reputations which convey credibility with VCs and/or clients. One big name that provides instant credibility may, in fact, be worth more to the company than a founder who actually puts in the work to build the business. Make sure to understand what each founder's contribution is and value it appropriately.

5 Model Proposal

5.1 Conceptual foundations of the model

In order to define the fair-equity split model between the co-founders, the following three things should be taken into account as the basis of the model:

- prior experience of the founders
- their contributions to the project (tangible like cash and intangible like ideas)
- future expectations of their roles and responsibilities in the startup.

The main conceptual pillars of the model include:

- **Fairness**
To understand the best and fair equity split for the founding team based the current situation of the startup.
- **Powerful**
Discover the strengths of the founding team.

- **Strategic**

Turn uncomfortable equity negotiations into a strategic teamwork.

The conceptual framework of the equity split model is shown in figure 10.



Figure 10: Conceptual framework pillars of equity split model

5.2 Model content

Founder Equity Solution (FES) [8] algorithm is designed based on a decade of research by Harvard professor Noam Wasserman who identified criteria which give equity advantage to certain founders.

FES model is designed with the aim to help founders understand what each of them brings to the table, get a recommendation on equity division and use it as a starting point for meaningful and trusting negotiations. The model concept is designed so that it's easy to use by founders.

The model is designed to calculate equity shares based on the answers to questions about things that matter for equity splitting, including:

- Entrepreneurial experience
- Professional expertise
- Intangible contributions like whose idea it was and who brings in a valuable network of contacts
- Commitment (time spent on startup, opportunity costs)
- Contributions (money, tangible things)
- Roles and involvement.

5.2.1 Model explanation

Model explanation

The first version of the equity split model builds a static or “snapshot” model of equity division. It means that it takes into account all past contributions of the founders and suggests equity split based on that. It doesn’t take into account their future contributions (apart, may be, just an indirect assessment of the role the founder assumes in the startup – CEO vs. non-CEO).

This is the most traditional way of how equity split is done. However, a “dynamic” equity split model, which is quite a recent invention, is not widely used in the startup community now. The aim is to actually help avoid many founder problems in the future e.g. founders leaving the teams and turning into absentee founders, or not achieving what is expected of them etc.

It was decided to start with the static model as it is clearer to the startup community and test with the first users to validate the concept. After the model concept validation from the startup community, it could be decided to build a dynamic model.

While designing the model, the following certain “default” startup characteristics are kept in mind:

- A startup is an IT/Internet-based startup
- Founders do not get salary from the startup
- And that it has no IP rights yet

Startups from other industries are likely to have other weights in the model algorithm and even other set of criteria. It was decided to account for that in more advanced versions of our model.

Quantitative considerations

The model is designed to be built on two types of inputs: Contributions and Criteria

1. Contributions

Contributions are everything that founders contributed to the startup so far, that can be evaluated in monetary terms, and what forms value of the startup equity at the present moment.

There are two types of contributions in the model:

- **Cash contributions**

Real money put into the project, including payments for hosting or web development, online marketing campaigns, cost of supplies – if essential to the project like office space, a car for product delivery etc – we can think over a more elaborate list and how it can be described at our webpage together).

- **Time contributions**

Time is cash, and in case of startups – the most valuable resource founders bring to the project. And it can be evaluated based on an hourly rate each founder determines for him or herself (based on their current cost on the labor market, or their assumptions about how much they would like to be paid if they worked for the salary etc.) and on the (approximate) number of hours worked so far.

There can also be other types of contributions like IP rights etc. It was decided not to take them into consideration in the first version of model, as they are more rare – and think about them in the next version of the model.

5.2.2 Model criteria

Criteria is something that is hard to evaluate in monetary terms, but what can adjust the “monetary” share based on the criteria premium.

Criteria premium means the amount of equity the founder receives in contrast to what he or she would have without this criteria. For example, the idea premium 15% (for technology startups, based on Wasserman’s research [7]) means 50% vs. 35% of equity for the founder who came up with the idea.

The main criteria considered for the model algorithm is shown in table 3 and is discussed below:

| No. | Criteria |
|-----|--|
| 1 | Founder experience |
| 2 | Idea |
| 3 | Pitch in front of investors |
| 4 | Accelerator program |
| 5 | Experience of working in a startup |
| 6 | Experience in the same industry |
| 7 | Role in the startup |
| 8 | Years of related work/ research experience |

Table 3: One dimensional criteria for model algorithm

- **Founder experience**

For founder experience the premium in the model depends on 2 factors: how many startups the founder had before (in the role of a founder), and what was his or her most significant achievement.

- **Idea**

The founder who brings the original idea of the startup should be rewarded appropriately. It's understood that idea does not mean much without implementation but based on research and initial founder interviews, this point was still highlighted very much. So it was decided to weigh the idea initially in the model algorithm to validate it later. The founders can jointly own the idea.

- **Raising money**

The founder who will pitch in front of investors and raise money will be weighed more among other founders. This founder is normally considered as "hustler" in the startup community and is a go-getter.

- **Accelerator/Incubator experience**

During research, it was realized that the chances of a startup's success are significantly increased if it comes through an accelerator or incubator due to multiple reasons like support, education, network, accessible funding channels, access to talent etc.

- **Startup experience**

Working in a startup is different from working in an enterprise mainly because of the fact that the risks and uncertainties related to a startup especially during the early stages. Having prior experience in startup gives a definite advantage over other founders who have not worked in a startup before.

- **Experience in the same industry**

Any founder which brings experience in the same domain as the startup is definitely beneficial for the startup in the sense that the founder can act as a subject matter expert in the startup's domain but could bring other benefits such as network, access to customers, future employees of the startup etc.

- **Role in the startup**

The role of the founders show the relative risk that each founder takes in the startup and relative responsibilities as well. Normally the CEO is the original founder who has come up with the idea in the early stages startups and bears the most risk. The role of CEO in setting up the team etc. are also worth noting. So in the model design, relative weights were designed for each founder role.

- **Years of related work/ research experience**

The relevant experience of the founder reflects the different premium depending on actual number of years worked.

So, in essence, the most important factors considered for the model design are:

- Idea
- The role in the startup
- Prior entrepreneurial experience

Based on the criteria, each founder is given points equal to their weights. Relative contributions, calculated as shares in the total "monetary" fund are turned into points as well and summed up with criteria. Total points of each founder are then divided by the total amount of points collected by all founders – and that's the founder's "static" share.

2. Adjustment

There might be a minimum threshold, such as when the founder's share is below that threshold, it's just not motivating any longer for the founder to participate in the startup. It was tentatively agreed to put the threshold at 15% for teams of up to 4 founders. As the final step the model checks if any of the founders got the share below the threshold

and adjusts it to 15%, keeping the ratios with other smaller shares and subtracting the necessary amounts from the biggest share.

The logic behind it is that the largest share will typically belong to the CEO and the idea person, and it is in his or her interests to motivate the rest of the team by giving them parts of his or her equity.

The problem with this approach is that if all smaller shares are adjusted so that the ratios among them is kept constant, the largest share can quickly become quite small, so another adjustment (on how small the largest share can get) might be needed in future.

Otherwise, when the team is filling in the questionnaire, once the founder indicated herself or himself as the CEO, she/ he will get additional questions from the model, like the range above and below which should show the shares of other founders fall if they turn to be below a certain level by other criteria but it needs to be validated further.

5.3 First version of the model for user validation

Based on the model concept and criteria discussed in section 5.2, the first version of the model was developed to be validated by test users. The model with criteria assigned to each founder question was formulated in an excel sheet and was face to face user tests were conducted to document the feedback and responses of the model.

The first version of the model is shown in table 4.

1 Is this your first experience as a Founder?

2 How many startups have you founded?

NUMBER

3 What was the biggest achievement of you as a founder?

Successful
exit
Profitability
stage

| |
|--|
| |
| |

Raised VC funds
 Had sales/ significant traffic
 Launched a website/ an app

4 Have you pitched in front of investors?

YES

NO

5 Have you participated in an accelerator program?

YES

NO

6 How many years of prior work/ research experience do you have?

NUMBER

7 Which best describes your prior experience:

Research
 Product development
 Marketing
 Sales
 Finance, investment
 Project management
 General management

8 Was the start up idea yours?

YES

NO

(yes, if you came up with the idea together with your co-founder(s))

9 Do you have an experience of working in the same industry (can you call yourself a subject-matter expert?)

YES

NO

10 What is your position with the start up?

CEO

| | |
|-------|--|
| CTO | |
| CMO | |
| CFO | |
| Other | |

Table 4: First version of the model used for user validation

In addition to the direct feedback for the model from the users, an online survey was setup to validate the criteria behind the model. The online survey questionnaire is shown in the appendix 1.

6 Preliminary Model Validation and Feedback

6.1 Feedback description

The online survey (shown in appendix 1) was used to validate the criteria behind the model. The survey was taken by 26 people who were mostly are startup founders already or are in process of becoming the startup founders but have started to build teams already. The feedback obtained through the online survey was very detailed and insightful. The survey results are analysed in detail in section 6.2.

The proposed model was user tested by a pilot user segment of 10 people. The model was provided to the users in the excel sheet for the users to start answering the questions of the model along with their co-founders together for their startup. The approximate time used by a team was around eight minutes and on average, each did an iteration of three times to end up at the desired results. The qualitative feedback regarding the overall usage of the model was taken along with the objective feedback to the questions of the online survey was collected. The feedback from the user-testing is analysed in detail in section 6.3.

6.2 Online survey feedback

Below is the breakdown per question of the online survey questionnaire responses. The responses are quite easy to interpret and easy to validate the model.

- **Question 1**

The founders were asked to rate a set of founder qualities or non-monetary contributions in terms of their importance for the success of the project/startup. The idea was to validate if the basis of the premiums given to each criteria is in line with the survey responses.

As expected, prior entrepreneurial and industry expertise were the dominant factors for the success of the startup. Other factors such as ability to work full-time, sales & marketing skills, technical skills etc. turned out to be aligned with the model concept.

A slight deviation was found with the idea contribution and opportunity cost. The idea contribution turned out to be less effective criteria and was slightly lower to what was assigned in the model. The opportunity cost which signified the risk any founder is taking by e.g. quitting a well-paid job for the startup, turned out to be the least determining factor. It was difficult to validate the reasoning for the low value of opportunity cost because as per the available research and other models that are discussed in this master thesis, this seems to be an important factor for equity distribution but was noted for further analysis.

The breakdown of the answers to question 1 of the survey questionnaire is highlighted in figure 11.

How would you rate the following founder qualities or non-monetary contributions in terms of their importance for the success of the project (1 being the most important one, 8 being the least important)

Answered: 26 Skipped: 0

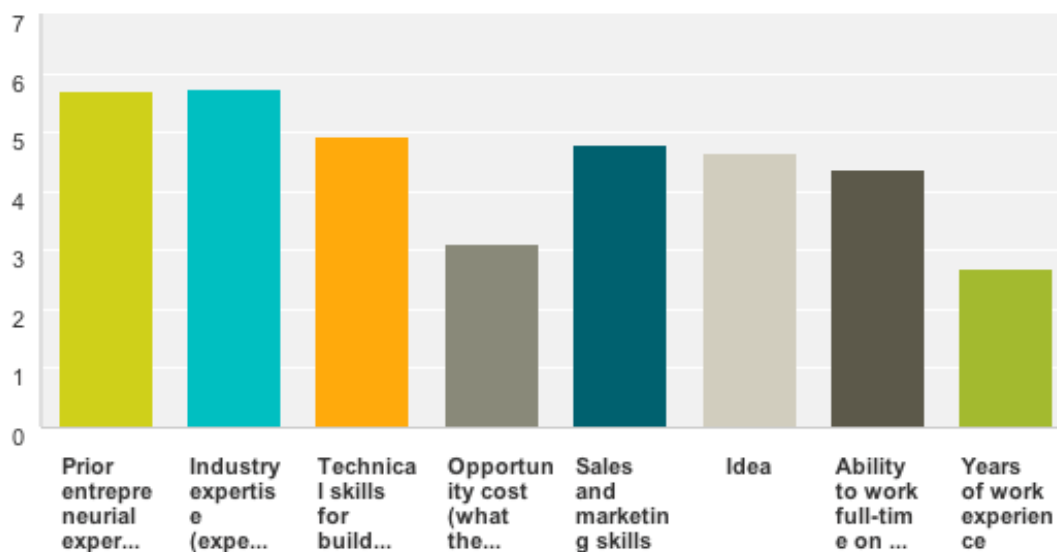


Figure 11: Consolidated answers to question no. 1 of survey questionnaire

- **Question 2**

The founders were asked an open ended question to list any other important qualities or contributions that were missing from question 1 of the survey. The idea of this question was to validate if there is any important criteria or factor missed while designing the model.

One major factor that came repeated in the answers was the passion and ability to move ahead during challenging times which are frequent in a startup. In the model, it was implicitly considered that each founder is persistent and willing to test the waters during the turbulent times. It does not make sense to ask this explicitly or assume that there would be founder who could not handle pressure. So the hypothesis to add this factor to the criteria of the model algorithm was rejected.

Other factors like team building and team inspiration were considered in the roles of the founders in the model. As discussed in the model criteria in section 5.2.2, the CEO of the startup is assumed to build, lead and inspire the team of the startup.

The breakdown of the answers to question 2 of the survey questionnaire is highlighted in figure 12.

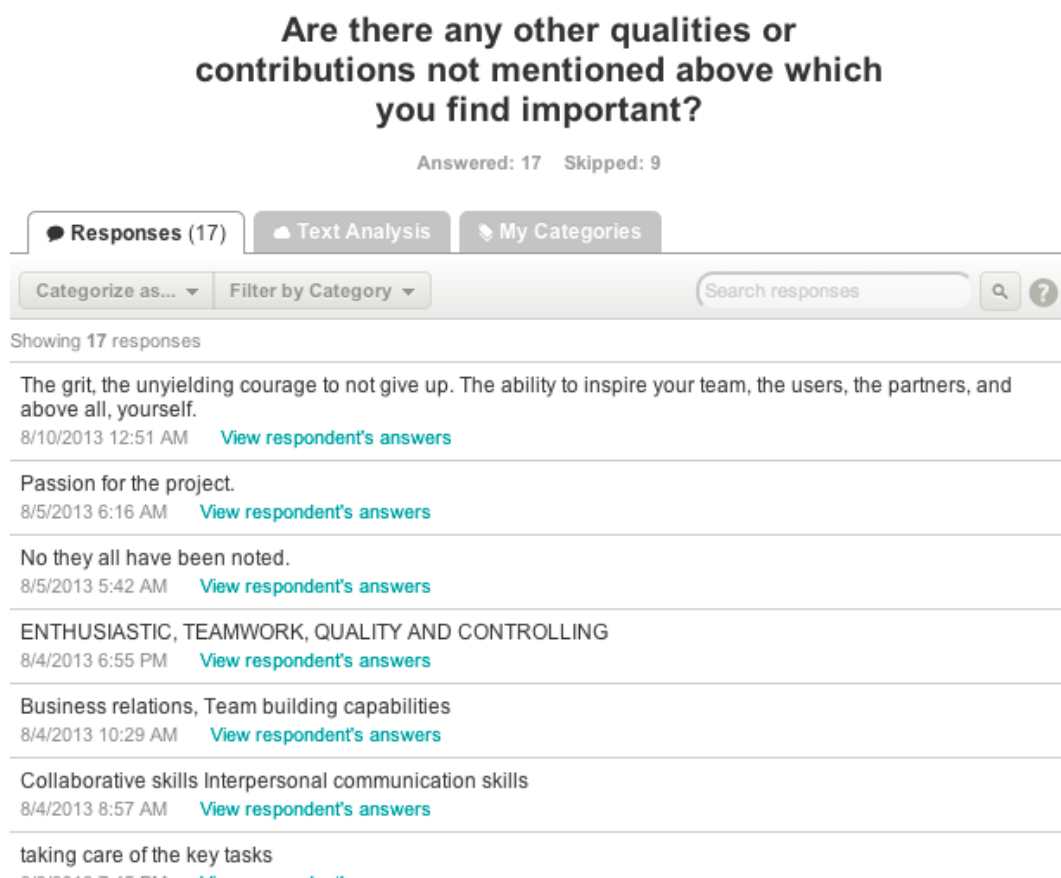


Figure 12: Consolidated answers to question no. 2 of survey questionnaire

- **Question 3**

The founders were asked about their overall feeling while doing the equity split exercise in their startup. The idea was to validate if it's a challenging process resulting into disagreements or arguments and whether it needs to be optimized.

Surprisingly, around 80% of the survey respondents felt comfortable or just fine with equity distribution process. Only 20% felt that the equity distribution discussions are non-comfortable. The size of the user group is not that big to make any conclusions and did not know how many of the respondents just divided the equity equally in their startups, so it was left for more thorough analysis with wider and relevant segment in future.

The breakdown of the answers to question 3 of the survey questionnaire is highlighted in figure 13.

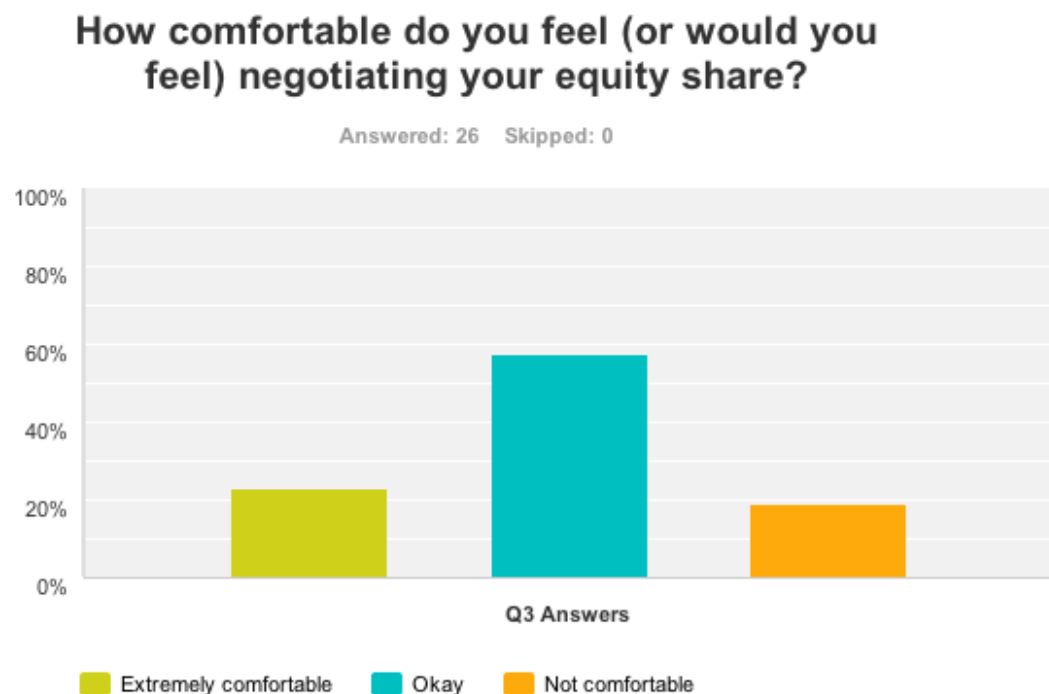


Figure 13: Consolidated answers to question no. 3 of survey questionnaire

- **Question 4**

The founders were asked to select from a list of most important factors that result in equal splitting of the founder equity. The idea was to validate the factors that are discussed in the theory (section 3) and current state analysis (section 4) of this master thesis.

The responses revealed that 30% of the respondents trust equal splitting method as the rule of thumb for equity distribution between co-founders and believed that it is the only right way to do so. Remaining 70% of the respondents believed that chances of equal splitting actually are increased if you know the founders in advance i.e. family members or relatives, friends or co-workers. The expectation was in-line with research from Noam Wasserman as well. [7]

The breakdown of the answers to question 4 of the survey questionnaire is highlighted in figure 14.

Which factors could increase for your team the chances of splitting equity equally (in spite of all drawbacks this decision may have!)

Answered: 21 Skipped: 5

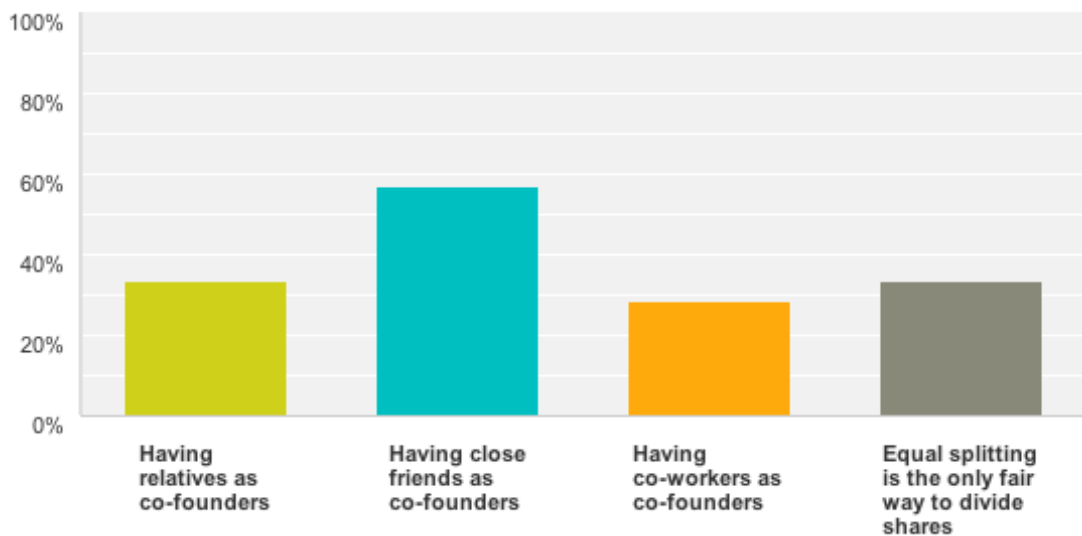


Figure 14: Consolidated answers to question no. 4 of survey questionnaire

- **Question 5**

The founders were asked if they would be willing to try a dynamic equity split arrangement i.e. a model which changes the size of founder shares on regular basis based on the changing situation of the startup. The idea was to validate if the static model is good

enough basis to create a solution on top of it or whether dynamic model is needed before the solution is built.

Around 70% of the respondents felt that having a dynamic model will be helpful. This feedback is important to base the future strategy of the model and the overall solution.

The breakdown of the answers to question 5 of the survey questionnaire is highlighted in figure 15.

Would you consider using a dynamic equity arrangement with your team? (in which sizes of founders' shares are regularly recalculated based on the changing situation in the startup)

Answered: 25 Skipped: 1

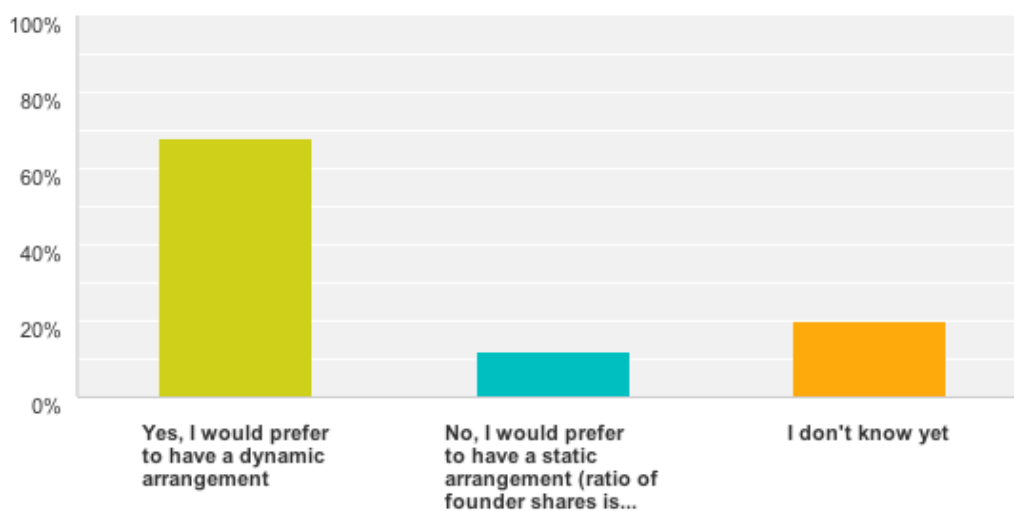


Figure 15: Consolidated answers to question no. 5 of survey questionnaire

- **Question 6**

The founders were asked to select from a list of pre-selected features that they would be willing to pay to use in future. The idea was to validate the business potential of the overall idea of equity split and what features need to be prioritized for development to turn the idea into business.

Interestingly, 40% of the respondents were willing to pay for dynamic equity distribution. 35% of the respondents were willing to pay for a vesting schedule. 20% of the respondents were willing to pay for startup pre-money valuation calculations. The results were very encouraging and definite help to creating the future business model.

The breakdown of the answers to question 6 of the survey questionnaire is highlighted in figure 16.

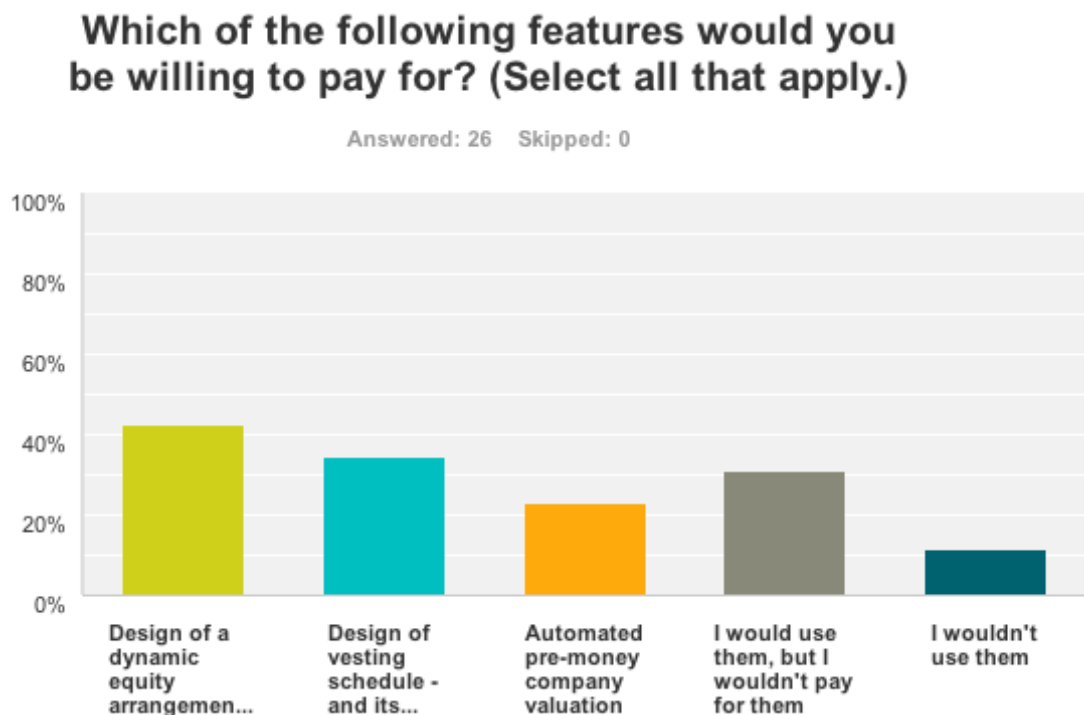


Figure 16: Consolidated answers to question no. 6 of survey questionnaire

6.3 User testing feedback

The proposed model was user tested by a pilot user segment of 10 people. The model was provided to the users in the excel sheet for the users to start answering the questions of the model along with their co-founders together for their startup.

Here are some analysis of the results:

- The approximate time used by a team to use the model to calculate the equity split for the first time was around eight minutes.

- On average, each team did an iteration of three times to end up at the desired results.
- The major focus was on the questions while answering and not on the equity results which was a good sign.
- There were questions asked regarding the idea premium which some founders failed to divide in ratio between the co-founders when the idea was shared.
- The overall feedback regarding the questions was very good and most agreed with the criteria behind the questions.
- Most seem happy with the equity split results and the model suited the startups which were in the early-stage or close to incorporation.

The major drawback that came up during the user tests were related to the monetary and time investments in the startup. The model was designed to avoid any complexity and to keep it basic to only focus on the key factors. But the respondents strongly argued about both monetary investment which is crucial especially in the early stages of the startup where it has most risk and also the time contribution to reflect the investment in terms of time for the startup. This was again valuable feedback and considered for the next model update.

A sample calculation of equity split between a user group team of four founders is shown in figure 17.

| Calculations | Input | | | |
|--------------------------------|--------------|-----------|-----------|-----------|
| | Founder 1 | Founder 2 | Founder 3 | Founder 4 |
| | | | | |
| Your role in the startup | CEO | CFO | CMO | CTO |
| | | | | |
| Whose idea was it | yes | yes | yes | yes |
| | | | | |
| How many startups did you run? | 0 | 1 | 0 | 0 |

| | | | | |
|------------------------------------|----|---------------------------------|----|----|
| Biggest achievement | | Successful exit / Profitability | | |
| | | | | |
| Pitch in front of investors | no | no | no | no |
| | | | | |
| Accelerator program | no | no | no | no |
| | | | | |
| Experience of working in a startup | no | yes | no | no |
| | | | | |
| Experience in the same industry | no | no | no | no |
| | | | | |
| Years of related work experience | 4 | 4 | 0 | 5 |
| | | | | |

Table 4: A sample calculation of equity split in the user tests

7 Final Model Proposal

7.1 Model description

The final model known as Founder Equity Solution (FES) [8] is created to incorporate the feedback from the section 6 of this master thesis. The FES model calculates equity shares based on your answers to questions about things that matter for equity splitting, including:

- Entrepreneurial experience
- Professional expertise
- Intangible contributions like whose idea it was and who brings in a valuable network of contacts
- Commitment (time spent on startup, opportunity costs)
- Contributions (money, tangible things)
- Roles and involvement.

From the prior version, some key factors are now included in the model algorithm. The monetary and time considerations are taken into account in the algorithm. The founders are asked about the amount of money invested in the startup till the time the equity distribution is done. Similarly, founders are asked to fill in number of hours that they have worked on the startup and estimate the hourly cost based on the market, startup domain, role etc. The number hours and costs were multiplied to get the time investment converted to tangible monetary investment.

Some factors are toned down in the model also as per the feedback. The idea premium is decreased after discussion with founders. Similarly, the threshold limit of equity for a founder is removed as the founders did not see it useful.

7.2 Model usage

A web solution is developed by the author of this master thesis on top of the updated FES model based on the feedback. The main idea for the web solution was to provide enough information to the founders to use the system and make it as simple to use as possible. The design of the solution was based on the following three simple steps (also highlighted in figure 17):

- **Step 1:** Founders are asked simple, short and objective questions.
- **Step 2:** Based on their answers our built-in algorithm estimates their relative contribution to the venture.
- **Step 3:** Based on the estimations the system suggests the fairest way to split equity among the founders.

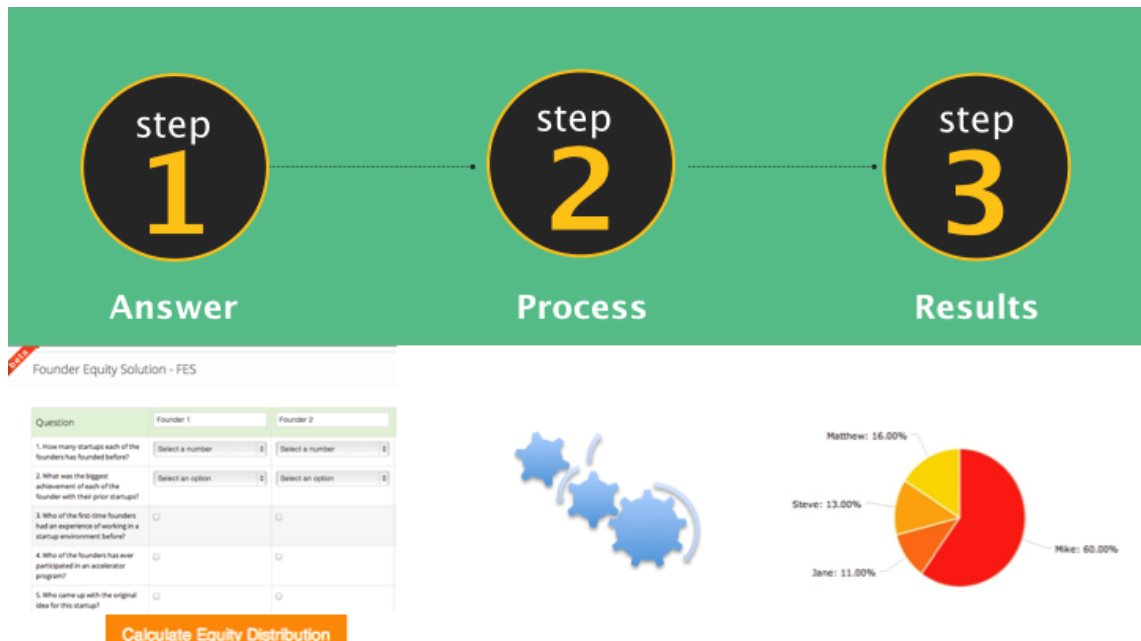


Figure 17: A simple three-step process to use FES model for equity split

The solution asked very simple, objective questions from the founders using a very simple interface. The founders provided the answers in the text box provided or using drop downs. The user interface of the solution is shown in figure 18. The model algorithm internally calculates the equity estimations depending on the answers given by the founders. The founders are free to modify the values as they like and could share the results with other founders. The results were highlighted in a very simple and easy to understand pie chart as shown in figure 19.

| Question | Founder 1 | Founder 2 |
|---|--------------------------|--------------------------|
| 1. How many startups each of the founders has founded before? | Select a number ▼ | Select a number ▼ |
| 2. What was the biggest achievement of each of the founder with their prior startups? | Select an option ▼ | Select an option ▼ |
| 3. Who of the first-time founders had an experience of working in a startup environment before? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Who of the founders has ever participated in an accelerator program? | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Who came up with the original idea for this startup? | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. What is the position of each of the founders with the startup? | Select an option ▼ | Select an option ▼ |
| 7. If the founder works full-time on the project, what he/she had to give up for this? | Select an option ▼ | Select an option ▼ |
| 8. Who of the founders works part-time, but will join full-time once your startup gets funding? | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Who of the founders reaches out and pitches the investors? | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Who of the founders is a subject-matter expert (had an experience of working in the same industry/ field as the current startup)? | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Calculate all monetary contributions each of the founders has made to the startup (use the same currency for all founders) | 0 | 0 |
| <input style="width: 20px; height: 15px; border: 1px solid #ccc;" type="text" value="?"/> | | |

| | | |
|--|--------------------------------|--------------------------------|
| 12. For each of the founders, give an estimation of how much they should be paid per hour of work for the startup (use the same currency for all founders) | <input type="text" value="0"/> | <input type="text" value="0"/> |
| 13. Calculate the number of hours each of the founders spent working on this project (e.g. average number of hours worked per week x number of weeks worked) | <input type="text" value="0"/> | <input type="text" value="0"/> |

Calculate Equity Distribution

Figure 18: User Interface for the FES solution

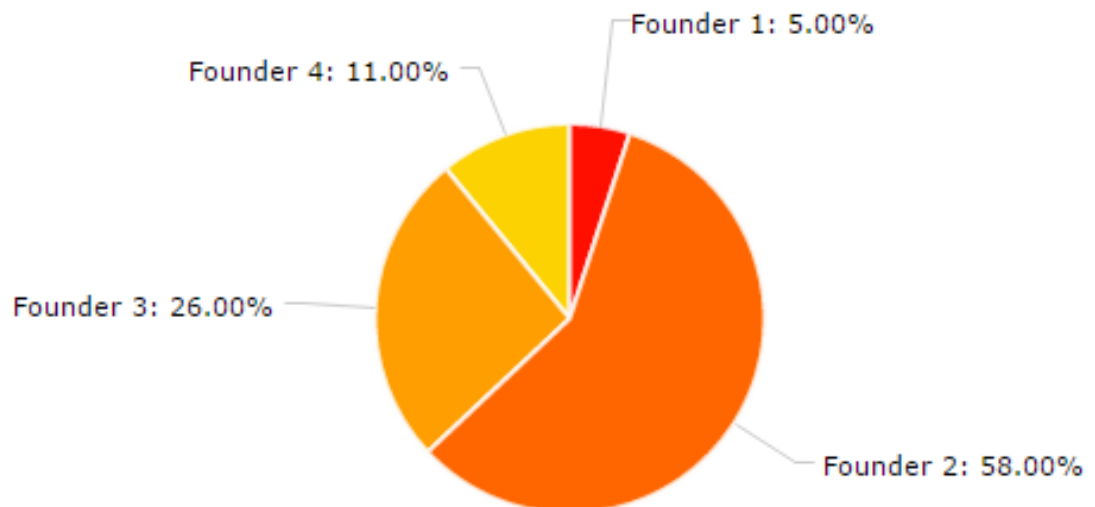


Figure 19: Example equity split recommendations from the FES model

7.3 Model feedback

The final model was tested again with a wider and targeted segment of 20 startups based in Finland. The hands-on user tests were done in startup premises together with the founding teams present. All the startups were selected to be in early-stages. The

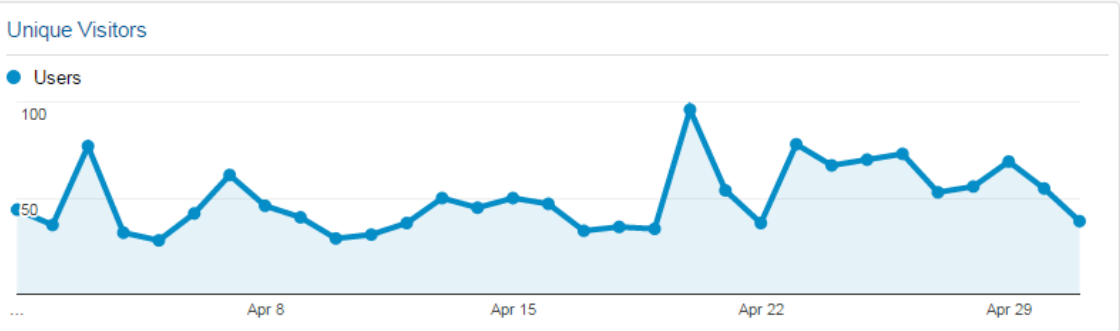
questionnaire used was quite comprehensive and included business model related questions as well but those are left out from the scope of this master thesis. A subset of questions used for the user tests are shown in Appendix 2.

Similarly, the results are also quite comprehensive and included detailed comments and suggestions from the founders. A sample feedback is shown in Appendix 3 for 10 startups and it is also filtered to leave out the business related feedback.

In addition to the user tests, the web solution was monitored for the usage on the website. The trivial KPIs that we monitored were:

- Number of unique visitors to the FES model webpage
- Number of users clicking the “Calculate Now” button to know how many equity distributions have been done
- Number of visitors per country
- Average session per user
- Top channels

The analysis for the FES webpage KPIs for the month of April 2015 is shown in figure 20. The results have been immensely motivating. The model has been used on a consistent basis by hundreds of users on a daily basis from all over the world as shown from the statistics.

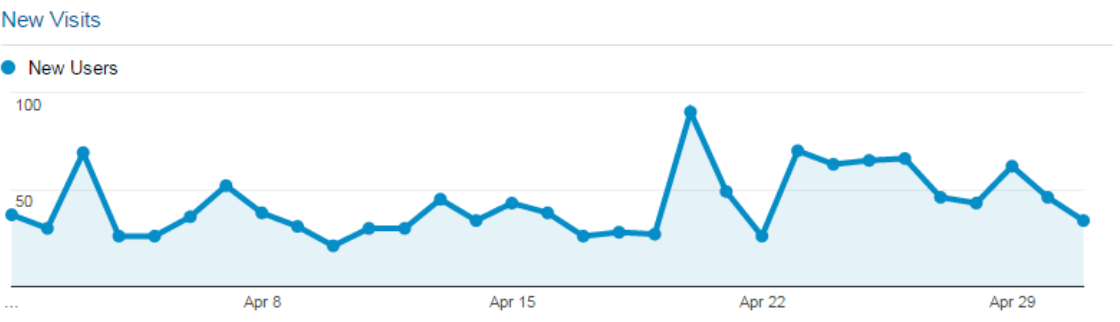


Visits by Country / Territory

| Country | Sessions |
|----------------|----------|
| United States | 740 |
| Russia | 176 |
| India | 127 |
| United Kingdom | 80 |
| (not set) | 64 |
| Canada | 54 |

Total Events and Unique Events by Event Category

| Event Category | Total Events | Unique Events |
|----------------|--------------|---------------|
| button | 3,050 | 663 |



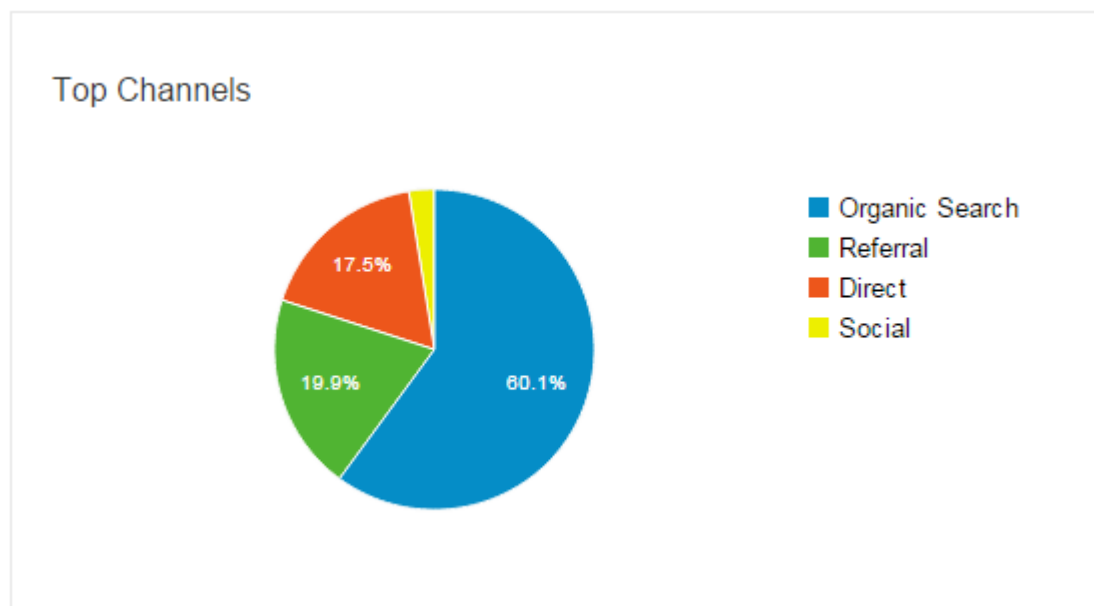


Figure 20: FES webpage KPIs statistics (April 2015)

8 Conclusions

8.1 Model discussion

8.1.1 Idea valuation – busting the myths

Based on feedback, most founders are willing to give a premium the idea (from 1 – 15%). A startup idea is a weighted sum of the initial ideas brought by each co-founder. In the early stages, ideas are worth nothing more than one's ability to execute on them. Having the right team is the single most important factor attributing to a startup's success.

Experienced VCs including Brad Feld [28] have stressed that the person with the idea should not command a premium on equity allocation. The founder equity should be for services to be rendered in the tough initial year(s) when the risk is highest and capital (i.e. cash) is non-existent. It is not for coming up with the idea, writing a patent, or going without a salary.

Commonly, founders romanticize their ideas, causing many difficulties in the search for a co-founder. By definition, a founder owns some of the original startup idea, but looking for a co-founder without being open to alterations in the original idea is extremely difficult.

Like all other forms of capital, one should be ready to put one's idea on the negotiation table.

To put a price tag for your startup idea is very difficult and probably much more difficult than putting valuation to your startup before funding round as for valuing your company, you might have knowledge of some tangibles, investments, team expertise, pilot, sales forecast etc.

The first assumption in the model was to give "equity premium" to the founder who came up with the original idea in agreement with the other founders. Initially, it looked justifiable as the founders will get some credit for coming up with the idea which resulted in the startup to be founded in first place and get some agreed share of equity as a result.

But as the user tests were conducted with real world founders, it became more and more clear the premium might sound justifiable initially but won't be fair in the long run. For example, if a founder asks 5% of the equity premium for his idea. He will be reserving 5% of the equity irrespective of other contributions by him or his other co-founders. If the idea founder invests 1000€ but his co-founders are investing 50,000€ and doing most of the work in the startup, it won't be fair to reserve 5% equity irrespective. Needless to say that the idea initially during the founding stage would be unproven and most probably will go through multiple iterations before it gets market adoption.

The second scenario that was considered was to ask founders about the tangible value of the idea based on the possible IP (Intellectual Property) it brings. But that consideration was met with our own criticism after giving some more thought as most ideas can't be translated into IP like patents etc. Also, even if they do, it won't be possible to accurately measure the value of the generated IP.

It's a very common misconception in entrepreneurship that all it takes is a great idea to build a billion-dollar successful company. Some entrepreneurs or aspiring entrepreneurs even go as far ahead to value their idea to be as great to be worth millions of dollars in itself. However, every startup or company is built on the foundation of great idea(s) evolved over time and the idea plays a crucial part but it's not the sole criteria for success

of the startup. Here are some common myths related with the “big startup ideas” and our proposed reality check:

Myth #1: “All I need is a novel idea to create my successful startup.”

Reality check: No! Idea without execution is nothing! It’s as simple as that. To be successful, it requires impeccable and timely execution with a great team willing to modify/pivot from the original idea as needed.

Myth #2: “I got an original idea.”

Reality check: Almost all the ideas are never original and somebody in this big world for sure would have thought about it. Besides it’s not even a shame to not come up with an original idea. You would be pleased to hear that big majority of successful startups are based on the ideas which were not unique. Most of the best startups are based on a pivot/modification to an existing business model rather than a unique idea.

Myth #3: “Somebody might steal my idea if I share.”

Reality check: Don’t worry, as mentioned in above point, almost no idea is original. The world is big enough to believe with near certainty that somebody must have thought about your idea already. Anyway, even if your idea is unique, it’s worth nothing without your ability to execute and deliver. Also, before you execute you might want to validate your idea by sharing it to others and getting the feedback e.g. about the business potential, customer segmentation, market perception, market size and so on. There might be possible modifications or tweaks needed based on the market feedback before you go full-steam with the execution.

Myth #4: “I own a million-dollar idea!”

Reality check: Million-dollar ideas don’t exist. But billion-dollar companies do as a result of world-class execution. It’s the execution which counts and valued, not the idea itself.

According to an article by Derek Sivers [29], he argues that “ideas are just a multiplier of execution.” Figure 21 shows the multiplier values of ideas and execution values.

| | |
|---------------------|----------------|
| AWFUL IDEA | = -1 |
| WEAK IDEA | = 1 |
| SO-SO IDEA | = 5 |
| GOOD IDEA | = 10 |
| GREAT IDEA | = 15 |
| BRILLIANT IDEA | = 20 |
| ----- | ----- |
| NO EXECUTION | = \$1 |
| WEAK EXECUTION | = \$1000 |
| SO-SO EXECUTION | = \$10,000 |
| GOOD EXECUTION | = \$100,000 |
| GREAT EXECUTION | = \$1,000,000 |
| BRILLIANT EXECUTION | = \$10,000,000 |

To make a business, you need to multiply the two.

Figure 21: Ideas as a multiplier of execution [29]

According to Sivers, the most brilliant idea, with no execution, is worth \$20 and the most brilliant idea takes great execution to be worth \$20,000,000.

8.1.2 Other model realisations

- **Fairness**

Fairness, and the perception of fairness, is much more valuable than owning a large stake. Founding teams that allocate the founders equity fairly stay together a lot more than founding teams where one founder has a much better deal than the others. The same is true of venture capital firms. The most stable venture partnerships are those where the partners share in the carry equally or near equally. At the end of the day, this is as much about respect as it is about money. And when people feel disrespected, they are going to leave at some point. [28]

- **The founders are not intrinsically fundable**

When the founders start the company, it is worth approximately \$0. So their equity is worth \$0.

Let's say the founders work for 6 months, make progress, and then raise money at a \$10M post. Then employee #1 joins and gets 1% of the company. So his shares are worth \$100,000. So each founder got \$0 of stock when he joined the business. The employee got \$100,000 of stock when he joined the business.

- **Vesting**

Vesting is mandatory in the author's opinion while formulating the shareholder's agreement and dividing the equity of the startup. The standard is to use a four year standard vesting criteria which is the default standard. New criteria has been evolving as well e.g. Every team member of a US based company AngelList is on a 6-year vesting schedule including the founders. [30]

FES model does not provide possibility to incorporate vesting schedule in the model but it's been a priority feature for the next version of the solution.

- **Number of shares is not relevant**

As per Chris Dixon [32], the one most important number that the founders should know about the equity share is the percent of the company you are being granted. The following things don't matter:

- Number of shares: meaningless.
- Price of shares: meaningless.
- Percent of the outstanding option pool: meaningless.
- Your equity in relation to other employees: meaningless.
- Strike price of options: meaningless.

- **Tying the knot too early**

73% of teams split equity within a month of founding: amazing given the big uncertainties they face [4]. In reality, however, there can be problems with 'tying the knot' too early. Consider the example of 'Zipcar', a pioneering US car sharing company. It is a clear example of jumping to equity negotiations and deciding too early without seeing the potential of the partnership. The two founders agreed to a fifty-fifty equity split at the start, prior to knowing much about each other. It soon became apparent that one partner was much more capable and committed than the other. The capable partner did not have the funds to buy out the ineffective partner. She was therefore stuck with the original agreement that gave her only half of the company, yet she was doing all the work. [33]

The Zipcar example illustrates that there may be benefits of delaying the contracting until founders know more about each other. Vivek Khuller, the founder of Smartix, explains this further [4]:

"When you've worked with your co-founders before, it may make sense to divvy things up upfront because the trust is there and the information is there. But when the team doesn't know each other very well, where there are different domains, where you have little history of working together, it's best to delay it because things are still unknown and changing."

- **Delayed consequences of 50-50 split**

Downsides of equal equity splits are not visible immediately but start surfacing as the startup proceeds in the turbulent environment. This point became visible during the user tests of the model and the need for dynamic equity distribution became more valid. The same is observed in the real-life case studies in section 3.6.

8.2 Evaluation

8.2.1 Outcome vs. Objectives

The overall high-level objective through this master thesis is to help future startup founders understand the impact and avoid common pitfalls associated with equal division of equity. Through the study done during this master thesis and results of the model usage by the end users i.e. founders, it is clear that the problem of equity distribution is very

relevant among the startup founders and there is demand for a solution that helps them to make the decision of equity distribution among the founders in an easy but fair manner.

The master thesis analysed the impact of equal slitting of equity or commonly known as 50-50 equity split, during early stages of the startups could have to the success or failure of the startup. The master thesis collected and thoroughly analysed the factors that existing founders use as a basis for the founder equity split in section 3 of the master thesis.

To come up with model of equity split, a detailed study of the existing equity split models is done, analysed the pros and cons of each solution based on usage by the founders in section 4 of the master thesis.

The master thesis then extensively studied the criteria of equity-split model using author's co-developed solution – Founder Equity Solution (FES) [8] (mainly based on Noam Wasserman's research in his book "The Founder's Dilemmas") [4]) in section 65 of the master thesis.

An extensive feedback was gathered for the initial model via online survey and in-person user testing of the model in section 6. After the model is validated from the real users and through the online survey, a web solution is launched with the improvised model based on the feedback in section 7. Discussion based on the feedback, recommendations for future startup founders regarding equity split, validity of the model etc. is done in section 8 of the master thesis.

The master thesis is able to highlight the importance of equity in the startup, why equity distribution could be crucial factor in the long term success of the company, an equal-equity split or 50-50 split is almost never a good solution to split the equity, trust and fairness are the key factors to consider in the equity split, a simple model to share the equity split, key considerations based on your startup prior to deciding on the equity distribution etc. The master thesis is driven mostly by relevant case studies, solutions available and user feedback. Hence the end users validate the model and results of the solution could be trusted.

8.2.2 Reliability & Validity

The master thesis is driven mostly by literature including relevant case studies, practical solutions available to tackle the problem of equity split and the direct user feedback of a possible solution to the problem. Hence the end users directly validate the model and results of the solution could be trusted.

Founder Equity Solution ("FES") model [8] discussed in this master thesis is based on an algorithm that calculates shares of equity for each founder based on information (selected answers) provided by the users. The quality and precision of the calculated equity split depends on the quality and precision of the answers given. The algorithm used in the model is based on research findings and statistical data. It works well for most startups especially in the early stages of the startup.

The master thesis first proposes an initial model for user validation before providing a real web based solution based on updated model algorithm based on the user feedback of the preliminary model. The initial model is validated by both direct user tests and via an online survey questionnaire. The feedback for the preliminary model is discussed in detail in section 6. Final model is proposed after taking the factors from the initial model feedback and is validated again by the direct user tests and interviews.

The online solution feedback and statistics is tracked as well. Some of the statistics of usage of the FES online solution are shown in section 8.3. In addition to web solution, the solution got a very good feedback from social media channels. The Facebook page of FES has over 150 "likes" at the time of writing this master thesis. Figure 22 shows the Facebook statistics of the FES page. The twitter page [35] has over 100 followers.

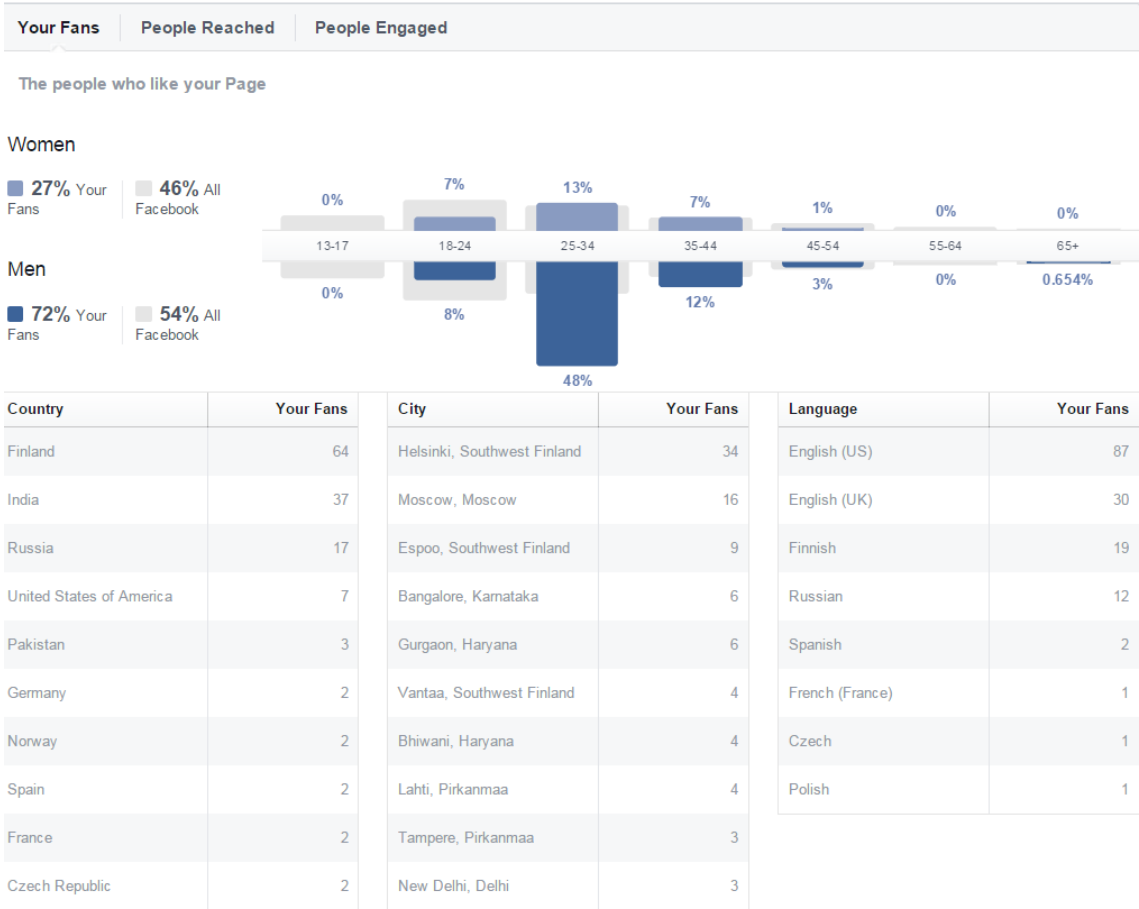


Figure 22: Facebook page statistics of FES solution

The solution has been picked up by many news outlets as well as many influential people, which goes on to prove the effectiveness of the model in solving the problem. According to the story published in “Washington Post” [36], the annual entrepreneur’s gift guide compiled by the professors at the University of Maryland’s Robert H. Smith School of Business. Experts, professors, investors, and veteran entrepreneurs weighed in on the best things to buy your favorite budding business owner. FES is highlighted among the top gift ideas for the entrepreneurs.

“This is a quick online tool for helping founders avoid the 50-50 equity trap. Nothing too revolutionary, but an ounce of prevention is worth a pound of cure.”
 — David Kirsch and Brent Goldfarb, associate professors of management and entrepreneurship. [36]

Other startup experts and influential people have used and recommended the solution as well. Figure 23 shows a recommendation given by international entrepreneur, Matthew Bailey, which the author of the master thesis user tested as part of the model validation.

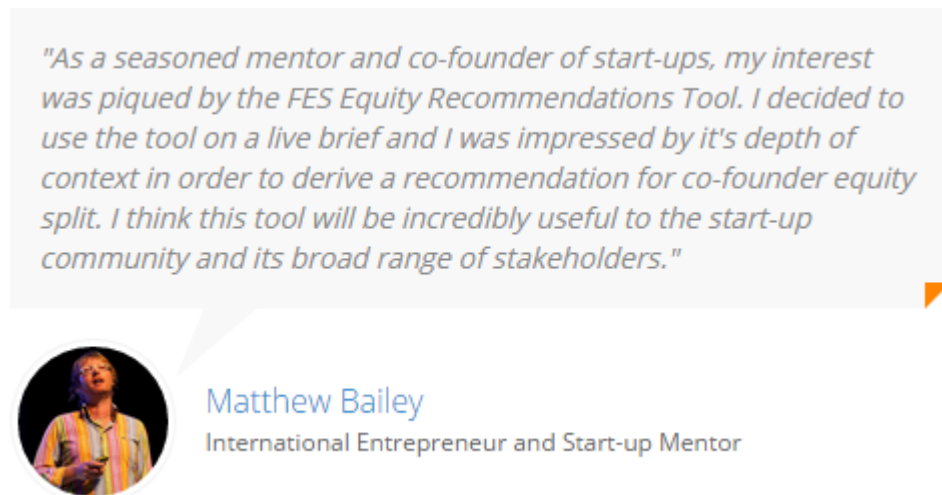


Figure 23: An example recommendation provided during model validation

However it's understandable that each startup is unique and each founder may have personal strengths or roles in the startup not included into our model. Hence, it is suggested that the end users use the equity split calculated in the model as a starting point for further equity negotiations with their co-founders, rather than a "set-in-stone" decision. For the avoidance of doubt, equity calculations provided by the model in the website [8] are not legally binding.

8.2.3 Best use cases of the model

As per the model validation, the FES model has proven to be particularly useful for the following cases:

- The model discussed in this master thesis is primarily targeted for a startup in the early-stages i.e. there is no previous history between the founders and not much work has already been done.

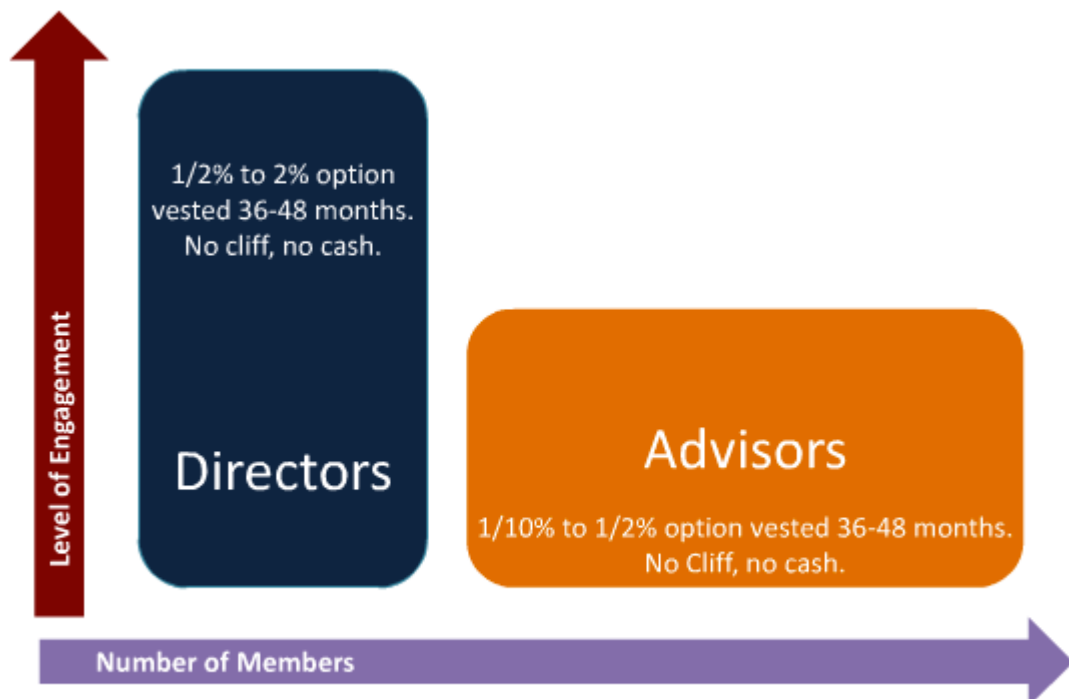
- The equity distribution model is developed to include only four co-founders in the equity split calculations. There might be startups where more than four founders are needed but in general, four co-founders should be enough in the early stage to avoid disagreements, faster decision making etc. The next model will have the ability to increase or decrease the founders as per the startup.
- The idea still contains a premium even the idea valuation myths explained in this master thesis (section 8.1.1). An alternative mechanism of idea valuation will be done in the next version of the model.
- The equity distribution model is primarily developed with keeping technology startups in mind. The roles in the model are assigned similarly e.g. Chief Technology Officer (CTO). But in general, the model should be applicable for every founder irrespective of the industry even though each industry should have different roles.
- The master thesis only focuses on “static” equity split i.e. the equity distribution remains valid until further changes e.g. changes related to founding team, investment rounds etc. and the equity does not change dynamically e.g. based on performance of founders etc.

8.3 Next steps and future recommendations

8.3.1 Equity for mentors/advisors and board members

The equity for mentors, advisors, board members etc. is impossible to calculate with the current model due to the fact that the model is built primarily for startup founders. The questions of the model reflect the same. It is recommended to take good care before giving out equity to advisors. It is also a good idea to let their shares also vested just like founders.

According to Peter Chee [23], when figuring out how to provide equity to advisors, figure 22 could be used as a guideline. Typically for an Advisory Board it ranges from 1/10th of percent to 1/2% and for Board of Directors from 1/2% to 2%



Source: Mike Crill, Atlas Accelerator

Figure 22: Equity guidelines for Startup Advisors and Board Members

Equity for advisors and board members could be added to the model in future. The model could calculate the equity by certain criteria or if the equity has already been agreed, the model could remove it from the overall equity pool of the founders.

8.3.2 Equity for employees

It's important to figure out how much equity is given to the employees of the startup. David Crow writes in his article "Founders versus Early Employees"[31], "Remember the goal is to incent early employees to have an emotional ownership of the product and company they are building. Equally said, potential employees need to understand what they are getting into".

Giving equity to employees also helps foster the "act like an owner" kind of mentality. Table 5 shows an example of how some companies may approach distributing equity to employees.

| TITLE | RANGE (%) |
|------------------------------|---------------|
| CEO | 5 - 10 % |
| COO | 2 - 5 % |
| VP | 1 - 2 % |
| Board Member | 1 % |
| Director | 0.4 - 1.25 % |
| Lead Engineer | 0.5 - 1 % |
| 5+ years Experience Engineer | 0.33 - 0.66 % |
| Manager or Junior Engineer | 0.2 - 0.33 % |

Table 5: Example equity distribution for employees

8.3.3 Solving idea valuation problem

To solve the challenges related to idea valuation described at length in section 8.1.1, the author's opinion is to solve the problem by incorporating the following in the next version of the model:

- Asking the relative contribution to the idea between the founders as multiple founders could very well input to the implemented idea.
- Asking the value of the idea in monetary terms from each founder and then using the average value of the idea for equity calculations. This will allow negate the over valuation by the original idea founder and possibly result in a fair agreement with constructive discussion about the value of the idea.

8.3.4 Number of founders

There are repeated calls from users to allow more founders in the equity calculations. Currently the solution allows to dividing equity between four co-founders. The next version of the model will take into account this feedback and will allow the users to dynamically increase or decrease the number of founders for the equity split.

8.3.5 Incorporating pivoting possibilities into the model

Noam Wasserman in his book, *The Founder's Dilemmas* [4], stresses that the importance and rate of pivoting in a startup. He argues that if there is possibility to pivot then the equity should be distributed taking into account the possibilities of pivoting.

“Is pivoting a possibility? So why do more than 50% of teams split equity without allowing for adjustments?” [4]

In order to safeguard the founders in light of pivoting in a startup, the model needs to be updated in future to make it robust. The safeguarding mechanisms for founders during uncertainties like pivots could be many e.g. vesting etc.

Hence, the future model might include factors like milestones or standard time based vesting mechanism etc.

8.3.6 Dynamic or static equity split

Certain users of the model stressed interest in a dynamic model where equity ratio changes with the direct performance of the founders. As discussed in detail while reviewing the available dynamic solutions in the market in section 4, there are obvious limitations with the dynamic models. The legal aspect is something that will impact the adoption of the model in practice by the startups and will be a barrier to entry in some countries where startup laws are strict. However in future, if the adoptions of dynamic models gain traction, FES model could be enhanced to provide a dynamic equity distribution option in addition to the static one.

8.3.7 Shareholder agreement (SHA)

During the user validation tests, it was observed that for most startups the immediate next step after the equity distribution is finalized is to formulate and sign the shareholder agreement document, which includes the equity per founder, vesting terms etc. among other legal details of the startup. The solution could provide a standard SHA template, which could be used as a template to create the final with the lawyer.

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Appendix 1: Online survey questionnaire (for end-user model validation)

1. How would you rate the following founder qualities or non-monetary contributions in terms of their importance for the success of the project (1 being the most important one, 8 being the least important)

| | |
|----------------------|--|
| <input type="text"/> | Prior entrepreneurial experience |
| <input type="text"/> | Industry expertise (experience in the industry in which the project operates) |
| <input type="text"/> | Technical skills for building the product (like coding for internet startups) |
| <input type="text"/> | Opportunity cost (what the founder gives up to be able to work on the project) |
| <input type="text"/> | Sales and marketing skills |
| <input type="text"/> | Idea |
| <input type="text"/> | Ability to work full-time on the project |
| <input type="text"/> | Years of work experience |

2. Are there any other qualities or contributions not mentioned above which you find important?

3. How comfortable do you feel (or would you feel) negotiating your equity share?

| | | |
|-----------------------|-----------------------|-----------------------|
| Extremely comfortable | Okay | Not comfortable |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Other (please specify)

4. Which factors could increase for your team the chances of splitting equity equally (in spite of all drawbacks this decision may have!)

- Having relatives as co-founders
- Having close friends as co-founders
- Having co-workers as co-founders
- Equal splitting is the only fair way to divide shares

Other (please specify)

5. Would you consider using a dynamic equity arrangement with your team? (in which sizes of founders' shares are regularly recalculated based on the changing situation in the startup)

- Yes, I would prefer to have a dynamic arrangement
- No, I would prefer to have a static arrangement (ratio of founder shares is fixed whatever happens)
- I don't know yet

Other (please specify)

6. Which of the following features would you be willing to pay for? (Select all that apply.)

- Design of a dynamic equity arrangement - and its administration (like automatic reminders to founders to update their information for recalculation of the shares)
- Design of vesting schedule - and its administration
- Automated pre-money company valuation
- I would use them, but I wouldn't pay for them
- I wouldn't use them

Other (please specify)

Appendix 2: User tests questionnaire (for final model validation)

| | Questions |
|----|---|
| 1 | Have they done 50-50 or 1/n split between existing founders? |
| 2 | Initial reaction immediately after seeing the product? - Skeptical - Excited - Neutral - Does not want to continue |
| 3 | How much time it took for founder to complete the equity split round? |
| 4 | Number of founders selected? |
| 5 | Were the users using the system just for trial with random data or were they thinking and try to put near real-life values? |
| 6 | Was the users happy with the first-time results? - Complained about the results - Not sure - Neutral - Happy - Extremely happy |
| 7 | Did they ask for the calculation logic after seeing the results? |
| 8 | If yes, specifically for which part? |
| 9 | Did any of the founders re-did the calculations after the initial results? If yes, how many times? |
| 10 | Was the users happy with the intermediate & end results? - Complained about the results - Not sure - Neutral - Happy - Extremely happy |
| 11 | Were they more concerend about changing equity values or were focusing on questions and just checked the equity changes in end? |

Appendix 3: Sample results of user validation tests

| Response 1 | Response 2 | Response 3 | Response 4 | Response 5 | Response 6 | Response 7 | Response 8 | Response 9 | Response 10 |
|--------------------------|--|-------------|---|------------|--|------------|----------------------------------|------------------------------|-------------|
| NO | YES | NO | NO | NO | YES | NO | YES | NO | NO |
| Neutral | Excited | Neutral | Skeptical | Excited | Neutral | Neutral | Excited | Neutral | Neutral |
| 20 mins. | 10 mins. | 15-20 mins. | 15mins | 20+ mins | 20 mins | 10 mins. | 15 mins. | 20 mins. | 15-20 mins |
| 3 | 2 | 4 | 3 | 2 | 3 | 2 | 3 | 2 | 4 |
| Thoughtful, so realistic | Seem realistic in 1st try | Realistic | | Realistic | | Realistic | | Realistic | |
| Neutral | Happy | Happy | Happy | Neutral | Neutral | Happy | Happy | Complained about the results | Happy |
| Yes | Not specifically but wanted to save the results or share | No | YES | NO | YES | NO | Not logic but result description | Yes | YES |
| Overall logic | | | Overall logic but suggested that if not possible, maybe section wise contributions to overall equity of a founder | | Some general reasoning of the resulting equity | | | Too much focus on idea! | |

| | | | | | | | | | |
|-------------------------------|---------------------|----|--|-------------------|-------------------|-------------------|----------|---------------------|--------------|
| Yes, 3 | Yes, 1 more | NO | YES, 4 times (looked like play- ing around in the end) | YES, 5-6 times | Yes, 2 ti- mes | Yes, 3 ti- mes | Yes, 1 | Yes, 4-5 ti- mes | YES, time |
| Neutral | Happy | | Happy to extremely happy in the end | Happy | Happy | Happy | Happy | Not sure | Happy |
| focusing on questi- ons | questions in 1st | | Both | Both | Focussed | Focussed | Focussed | Focussed | |