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Connecting The Nodes

Going beyond financial data – The crucial and complementary role of social network analysis (SNA) for investments in startup companies

There is certainly evidence that investing in startup companies is of great economic value due to their future contribution to a country`s gross national product and the innovation, disruption as well as job creation that comes along with it. However, a lot of money is chasing startups these days, especially in the USA, due to substantial liquidity in the markets, and the need of investors for higher returns. There are though clear regional differences and while Germany`s entrepreneurial ecosystem reportedly attracted only EUR 400 - 500 million in 2013, investments in US startups were up to 60 times higher. Considering Germany`s track record for innovation, the difference in investments also shows why US, European, Middle Eastern, and Asian investors e.g. perceive greater relative value in Germany and Europe and will thus turn more strongly to the local startup ecosystem.

Institutional investors, who entrust e.g. venture capital (VC) funds with a small portion of their assets, are used to much higher levels of transparency in the listed equities universe where they mainly invest. They currently have to make a compromise when it comes to the startup / entrepreneurial ecosystem. We even argue, in line with prior empirical research, that an emerging market such as the startup sector, which tends to be less transparent, relies more heavily on social ties / networks (not to be confused with social media) and generally has weaker checks and balances in place. Furthermore stronger "active conflict of interest" as well as "governance" frameworks are needed to ensure the sustainability of investments, and the proper management of risks and opportunities.

What does this mean for institutional investors who increasingly devote part of their assets to VC and startup related investments? Focusing on mere financial data will not be sufficient to get the big picture and understand the ties that drive investments as well as risks and opportunities alike. Social network related data is needed along financial analytics, if available at all, in order to get a reasonable and adequate basis for investment decisions. Independent, objective and complementary net-
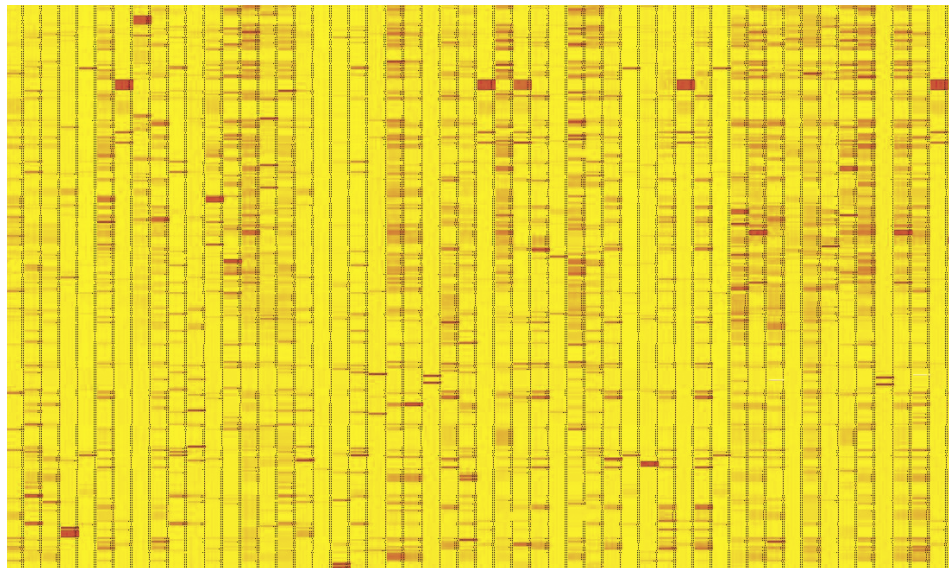
work data will allow investors, who have clear fiduciary duties and manage on behalf of others, to better control their venture capital fund`s activities and understand the human dimension that drives investments and consequently the respective risks and opportunities. By pointing to social network related data we mean the multiple ties that bind people based on their educational and professional background as well as various other links that connect startup investors such as VC funds to individual startups. We also refer however to the co-investment clusters that emerge due to VC funds` preferences to work over and over with the same co-investors they are used to.

Based on a proprietary analysis of over 2000 startup companies in mainly Germany and beyond (predominantly Europe) and their ties to over 500 relevant investors from across the world (angel investors, VC funds across all stages, ranging from the West Coast in the US to Hong Kong) which have invested in those startups, we would like to highlight three key network analytic elements which are just the tip of the iceberg but show how crucial it will be to monitor the startup ecosystem. Social network analysis will allow investors to better spot risks and opportunities alike and help to integrate insights into the entire investment process.

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1) Dynamic Network Monitoring

In order to understand in which clusters VC funds/investors are embedded and how it potentially affects their startup investments (who is investing with whom where?) you need to analyze and constantly update thousands of existing investments in relevant startups. We do this by linking investors to startups based on their investments and monitoring new investments as well as exits (transactions) and of course failures in a profound new way. What actually looks like a DNA sequence below is a heat map based on transformed investor-startup data (2-mode) into investor-investor data (1-mode) and correlation analysis that is performed to identify co-investment clusters. Hereby we receive an investor by investor matrix (>500 German as well as international investors as previously highlighted which invested in over 2000 startup companies) that shows the individual correlations among each and every investor in the startup-universe and its peers based on mutual startups in which they invest in common.
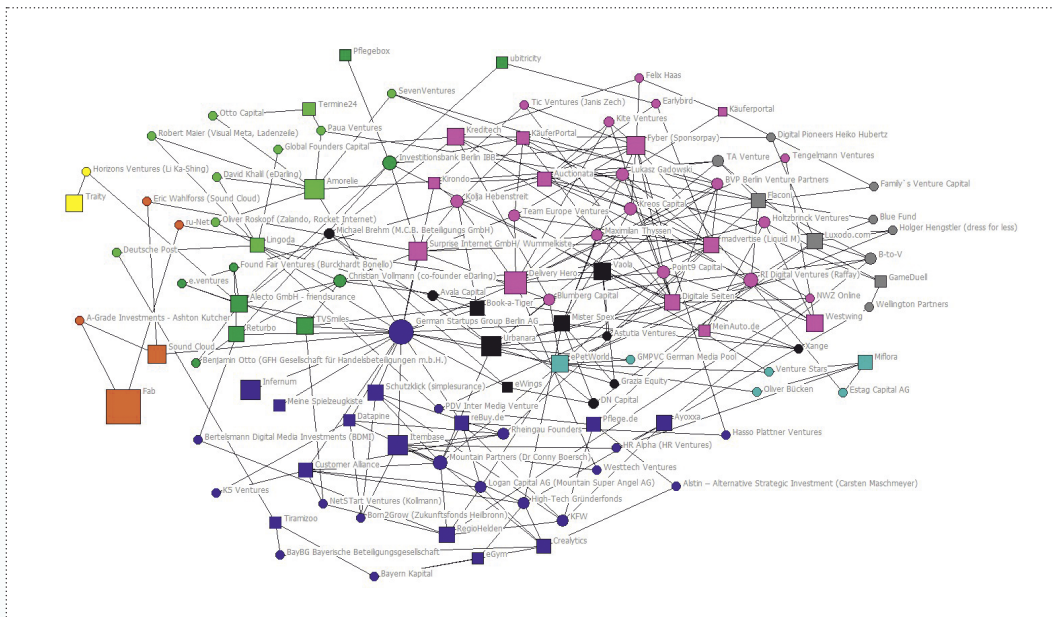
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Source: SONEAN, the German Startup Ecosystem

These insights are highly relevant as a "mouse click" basically separates the investor from very important and dynamically updated information about which investment clusters exist and how the existing network configuration could potentially affect the entire investment process from sourcing startups, to due diligence and valuation as well as exiting existing investments.

It also allows investors to identify how VC companies` portfolios correlate with all other investors` exposures, and answers questions such as whether they have exclusive portfolios of startups or are invested in those broadly shared by others. What VC funds are necessarily not aware of is the fact that their co-investment cluster might limit their selection universe as ideas will mainly stem from their co-investment partners. It can also affect the commitments being made, valuations of the respective startups and consequently the return potential for the overall portfolio. As investors such as VC funds are embedded into a network of co-investors in respective startups, their own knowledge of the clusters in which they are embedded is important to understand, making them aware of the dynamics which they are exposed to. The following overview also nicely shows the co-investment behavior around very well-known startups in Germany:

If you pick Holtzbrinck Ventures` main co-investment partners e.g. you will realize that its investment activities and portfolio constituents most strongly overlap with Rocket Internet`s, followed by the ones like RI Digital Ventures (Raffay), Tengelmann Ventures, Kreos Capital, and others (see below). The darker the color, the higher the overlap between their startup investments. In the case of the quasi-government run High-tech-Gründerfonds (right table), you see that Enjoy Venture`s portfolio strongly correlates with the High Tech Gründerfonds followed by LBBW Venture Capital and others.

ID	Holtzbrinck Ventures
Rocket Internet	
RI Digital Ventures (Raffay)	
Tengelmann Ventures	
Kreos Capital	
Investment AB Kinnevik	
Vorwerk Direct Selling Ventures	
Summit Partners	
Investitionsbank Berlin IBB	
Point 9 Capital	
e.ventures	
Insight Venture Partners	
Team Europe Ventures	
Seven Ventures	
Balderton Capital	
Wellington Partners	

ID	High-Tech Gründerfonds
Enjoy Venture	
LBBW Venture Capital	
Mountain Partners	
Bayern Kapital	
German Startups Group	
Investitionsbank Berlin IBB	
Technologiegründerfonds Sachsen	
K5 Ventures	
T-Venture	
Neuhaus Partners	
M.C.B. Beteiligungs GmbH	
eCapital Entrepreneurial Partners	
Tengelmann Ventures	
B-to-V	
Wellington Partners	

Source: SONEAN, the German Startup Ecosystem

Bringing The Social Network Perspective Into Decision Making

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The squares represent well known startups and how they are embedded into the investor universe. The circles on the other hand are known investors who have exposure to those startups. The larger the squares, the more investors are exposed to the startup, and the larger the circles, the more startups the respective investor is exposed to. The colors represent individual clusters based on similar investments.

sional and other ties, provides entirely new perspectives into the investment process and allows to spot additional risks and opportunities. In the following graph we have put together a VC fund`s portfolio of selected startup companies to provide social capital related insights. What originally seemed to be roughly 20 independent startups, turns out to be a portfolio dominated by three to four relevant clusters of people who are all directly or indirectly connected.

The below portfolio contains startups in the early and growth stage (■). If you track their social capital, i.e. the current and past ties of their founders and management (●) to the universities (■) which they attended and the companies they worked for before or are still associated with (■) you will realize that WHU, a leading business school in Germany, is a central player within the entrepreneurial ecosystem in this portfolio as the majority of founders and management of the respective startups are tied to WHU through prior education. Understanding how people among startups as well as investors are linked to each other provides therefore unique and complementary insights which allow us to better understand transactions, decisions as well as valuations and predict potential next moves more optimally.
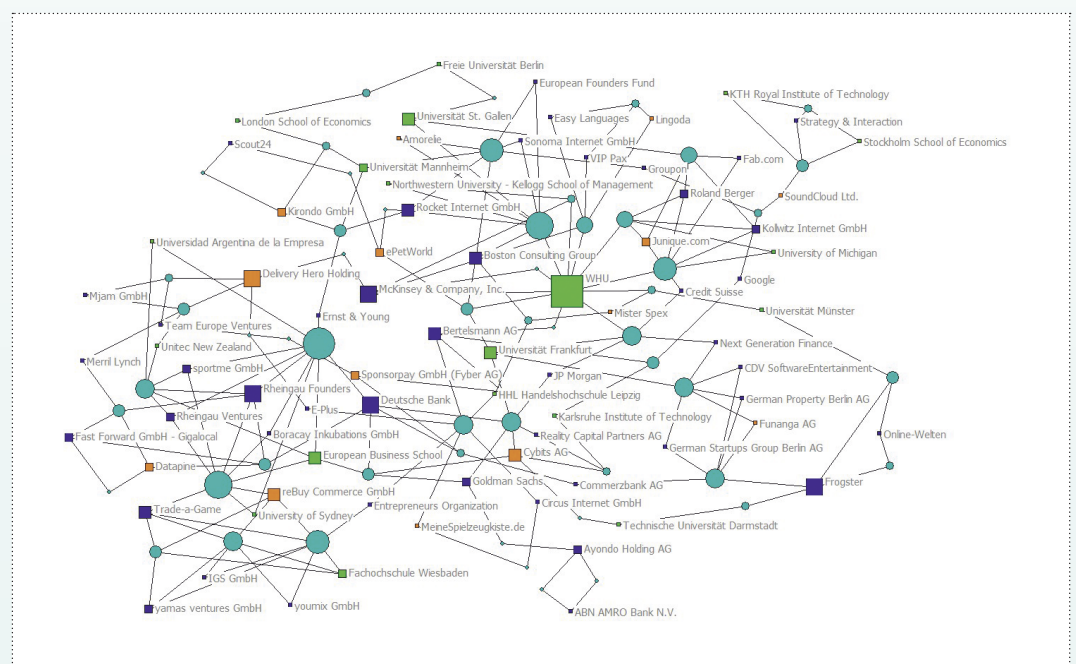
2) Social Capital related insights

The social capital perspective furthermore allows you to focus on the people that connect organizations and ultimately embody the companies we look at. Empirical research e.g. shows us that social capital has a significant effect on governance within organizations but also on organizational outcomes. This can be clearly seen in M & A related transactions which are predominantly driven by connected buyers and sellers and thus impact valuations, commitments given and other factors greatly. Understanding how investors such as VC funds` decision makers are connected with startups` founders and management through past and existing educational, profes-

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3) Ongoing Portfolio and Stakeholder Monitoring

Technology and state of the art proprietary research methodologies allow us today to constantly track individual ecosystems and their players and identify opportunities and risks in much better way. If you focus on multiple sources (e.g. thousands of relevant local as well as international publications, social media, portals and platforms / events, video streams, legal and trade registries, etc.) and follow a highly structured and systematic approach, you can more optimally detect relevant changes and make better decisions. Understanding the startup ecosystem with its investors and startups, the people behind the organizations and their historical ties and identifying the central actors is crucial though to ensure that the universe can be adequately monitored. This also requires constant adaptation and optimization of sources based on previous searches, i.e. a "learning" process where sources are weighted based on their past relevance and people as well as companies and institutions on their centrality within the ecosystem. The output of the relevant screening will thus inform clients on a daily / weekly basis where necessary but also update the respective network data to ensure that important changes and developments can be spotted. This way, new insights can be integrated into the entire investment process.

Summary

The dynamic network screening, the social capital related insights as well as ongoing portfolio as well as stakeholder monitoring represent just a fraction of possibilities when it comes to social network analysis` relevance for investing in the startup ecosystem. Whether you invest directly, search for co-investors as an investor or even funding as a startup, social network analytic insights will become mainstream in decision making complementing existing financial data in the future.

We are convinced that in 5 - 10 years, SNA will be a fundamental pillar and a crucial dimension in investment decision making, complementing financial and non-financial (such as Environmental, Social, and Governance – ESG) factors to better predict outcomes.

Investors with a fiduciary duty will thus be equipped with more insights and above all have much greater transparency to better understand the dynamics and take appropriate investment decisions. It will also help them to monitor their VC funds` and co-investors activities, and the embeddedness of startup companies in the respective ecosystem, assisting them to spot relevant opportunities and risks along the entire investment process.

Welcome Tomorrow !

About SONEAN

As a SNA (social network analysis) based strategy consultant, we bring the complementary social network perspective into our clients` investment (decision making) process and move them beyond financial and non-financial data to help identify risks and opportunities in a unique way. Our work mainly focuses on the entrepreneurial ecosystem (startup community) as well listed European companies space and provides investors (asset managers and asset owners alike) a new and crucial dimension when it comes to their investments.

The startup investment community still very much relies on social networks in making their investment decisions, a phenomenon shareholders, and ultimate investors such as asset managers (e.g. VC funds) and asset owners (family offices, pension entities, insurances, sovereign wealth vehicles and others) should be aware of.

We currently include over 2000 German / European startups in our daily research and their ties to over 500 relevant investors from across the world, a database that is expanding every day.

Our analytics allow us to provide unique inputs for the entire investment approach from sourcing or screening startup investments, to the due diligence and portfolio monitoring process but also the exit phase. We complement our clients` investment activities by providing an unparalleled transparency into the startup community / entrepreneurial ecosystem, including central actors and institutions, giving unique insights into how investors and startup founders are historically tied to each other through their social capital and the risks and opportunities that emerge from those links. We also go deeply into the co-investment clusters using respective algorithms as investors typically tend to stick to specific co-investors in their investments, limiting, without being aware of, their sourcing capability and return potential.

Our insights into the German/European startup community allow asset managers and asset owners alike to better control their investments and generate more optimal returns by providing them independent and objective intelligence and advice about specific portfolios managed for them or even regarding the startups that form their direct investments. A semi-automated and optimized "portfolio monitoring process" (based on multiple years of data) run by a dedicated team screens ongoing developments in the entrepreneurial ecosystem on a daily basis and creates unparalleled transparency for our clients by spotting risk and opportunities in a dynamic and timely manner. We hereby screen all relevant sources (publications / news, social media, trade registries, video sources and any other electronic insights) based on our proprietary methodology which our team developed in the last 12 years, pioneering internationally in many respects the application of social network analysis to the investment industry.

Disclaimer

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