Startup Metrics and Diligence

Interview preparation summary · VC track

IN THIS SUMMARY

- Reading the numbers
- Diligence

INT.VM.1.a · Reading the numbers

Build an annual recurring revenue (ARR) bridge, clean it of pilots and one-offs, and judge growth and capital efficiency with the burn multiple and the magic number.

Annual recurring revenue (ARR) is the annualised value of contracted, repeating subscription revenue at a point in time, usually monthly recurring revenue times twelve. It excludes implementation fees, one-off services, unconverted pilots and unusual usage spikes. A venture investor reads ARR as a bridge: opening ARR plus new logos plus expansion, less churn and contraction, equals closing ARR. The bridge shows whether growth comes from new customers or from existing ones, and how leaky the base is. Efficiency is then tested with the burn multiple, which is net burn divided by net new ARR. Lower is better, with figures near 1 or below usually strong and above 2 to 3 a concern. The magic number is net new ARR divided by the previous period's sales and marketing spend. Growth rates on a small base mislead, so compare the same period each year and state the base. The usual mistake is accepting a founder's headline ARR without asking what is inside it, or quoting a quarter's growth as if it were annual.

WORKED EXAMPLE: CLEANING UP BRIGHTLOOM'S QUARTER

Brightloom is an invented workflow software start-up. Over the last quarter its ARR went from 4.0m to a reported 5.2m: new logos 0.9m, expansion 0.5m, churn 0.15m and contraction 0.05m. Net burn in the quarter was 1.8m and sales and marketing spend in the previous quarter was 1.5m. The founder mentions that 0.3m of the closing ARR is unconverted pilots priced at the proposed contract rate. Assess growth and efficiency. Convention: all figures in £, the opening ARR is clean, and a quarter's growth is compounded when annualised.

Answer: Reported net new ARR is 1.2m (burn multiple 1.5, magic number 0.8), but after removing 0.3m of pilots it is 0.9m, with a burn multiple of 2.0, a magic number of 0.6 and quarterly growth of 22.5%.

> **Interview tip:** Say that ARR is an opening, additions and losses bridge, then give the cleaned burn multiple and say what you excluded and why. Interviewers listen for whether you question the definition before quoting the ratio.

INT.VM.1.b · Reading the numbers

Compute runway from forward net burn, distinguish gross from net retention, and read a cohort table to judge the quality of the customer base.

Runway is cash divided by forward net burn, in months. Net burn is cash out less cash in, whereas gross burn is cash out alone. Use the burn you expect over the coming months, including hires already agreed, not last month's figure, and watch annual prepayments, which flatter cash in the month they arrive. Raising usually takes several months, so a company with twelve months of runway is already close to the point of having to raise. Retention comes in two forms. Gross revenue retention (GRR) is opening ARR less churn and contraction, divided by opening ARR, and cannot exceed 100%. Net revenue retention (NRR) adds expansion, and can exceed 100%. A high NRR can hide a leaky base if a few accounts expand a great deal, so read both together and cut them by customer size. A cohort table follows customers acquired in the same period over time, showing logo retention and revenue retention separately. The usual mistake is to quote NRR alone, or to compute runway on the cheapest recent month.

WORKED EXAMPLE: RUNWAY AND RETENTION AT CORVANE ANALYTICS

Corvane Analytics is an invented data tools company with 9.6m of cash. Net burn has averaged 0.6m a month, but hires already agreed add 0.2m a month from next month. A year ago the customers then on the books paid 5.0m of ARR. Today that same group of customers pays 5.6m, which is the 5.0m plus 1.1m of expansion, less 0.2m of contraction and 0.3m of churn. Assess runway and retention. Convention: all figures in £, and runway is cash ÷ constant forward net burn.

Answer: Forward runway is 12 months, not 16, so the company should start raising now; retention is 90% gross and 112% net, which is healthy if the expansion is spread across many accounts.

> **Interview tip:** Give runway on forward burn and say why you did not use the average. Then give gross and net retention together and name the one cut of the data you would ask for next.

INT.VM.1.c · Reading the numbers

Calculate customer acquisition cost (CAC) payback and lifetime value to CAC, test them against gross margin and churn, and use marketplace and consumer metrics where subscriptions do not apply.

Unit economics ask whether a customer repays the cost of winning them. CAC is fully loaded sales and marketing spend, including salaries and commissions, divided by new customers won in the same period. CAC payback is CAC divided by monthly gross profit per customer, where gross profit is monthly revenue times gross margin; it is shorter than twelve months for fast small-business sales and may be longer for enterprise sales. Lifetime value (LTV) is annual revenue per customer times gross margin divided by annual churn, so LTV to CAC is highly sensitive to the churn you assume. Gross margin matters because it separates software from services and, for products built on paid model or hosting costs, shows whether scale helps. Marketplaces add gross merchandise value (GMV), take rate (net revenue over GMV), liquidity and repeat behaviour, and consumer products look at day-30 retention and paid versus organic acquisition. The usual mistakes are counting only advertising spend, using blended CAC to hide paid CAC, and assuming a customer lifetime of many years.

WORKED EXAMPLE: TALLIS WORKS UNIT ECONOMICS

Tallis Works is an invented software company selling to small businesses. Last quarter it spent 1.2m on sales and marketing, including salaries, to win 60 new customers. Each customer pays 24k a year, gross margin is 75% and annual customer churn is 15%. Advertising was 0.5m of the 1.2m. Work out CAC, payback and LTV to CAC, and test the churn assumption. Convention: figures in £, no discounting, lifetime equal to one ÷ annual churn.

Answer: Fully loaded CAC is 20k, payback is about 13.3 months and LTV to CAC is 6.0 at 15% churn, falling to 3.0 if churn is 30%.

> **Interview tip:** Quote payback first because it needs no lifetime assumption, then give LTV to CAC and say how it moves with churn. State that CAC includes salaries.

INT.VM.2.a · Diligence

Size a market bottom-up and top-down, state the implied share a venture-scale outcome needs, and judge whether the market supports a fund-returning company.

Market sizing for a venture investor answers one question: is the market large enough that a company winning a realistic share becomes a very large business? Top-down sizing starts from an industry report and takes a percentage, which is quick but unfalsifiable, because one per cent of a very large number tells you nothing about customers. Bottom-up sizing counts the customers who fit, multiplies by the price they would plausibly pay, and then applies a realistic penetration rate. Total addressable market is everyone who could buy; serviceable market is what your product and channel can reach today; obtainable market is what you can win in the period. Work backwards from the outcome: required exit value divided by an exit revenue multiple gives the revenue needed, and dividing by the serviceable market gives the share required. If that share is implausible, the plan needs a higher price, a wider product or a bigger market. The usual mistake is a large top-down number with no customer count behind it.

WORKED EXAMPLE: SIZING VANTRO FREIGHT SOFTWARE

Vantro Freight Software is an invented company selling operations software to mid-sized freight forwarders. There are about 14,000 forwarders in its region, of which 40% have 20 to 200 staff and fit the product. Annual contract value is 18k. A founder also says the logistics software market is 12bn and Vantro needs only 1%. The fund wants a path to a 500m exit and assumes a revenue multiple of 6x at exit. Size the market and test the plan. Convention: figures in £, annual contracts, constant price.

Answer: The serviceable market is 100.8m, a 500m exit needs about 83m of revenue, which is 83% share, so the core product alone does not support the outcome; the case rests on raising contract value to about 60k.

> **Interview tip:** Lead with the customer count and price, then work back from the exit to the share required. Saying that the core market is too small, and naming what would enlarge it, shows judgement.

INT.VM.2.b · Diligence

Run product and customer diligence: reconcile reported ARR to billing, test concentration, utilisation and pilot conversion, and design reference calls that include churned and lost customers.

Product and customer diligence tests what customers do, not what they say. Start by reconciling reported ARR to invoices and bank receipts, because dashboards often include contracts that have not gone live, customers who have left, or pilots. Then measure concentration (the share of ARR from the largest and the top five customers, and when their contracts end), utilisation (seats or usage actually active against what is paid for, since shelfware is a renewal risk), and pilot-to-paid conversion on pilots that have finished. Cohort data from the billing system shows retention directly. Reference calls should include customers the founder did not choose: recently churned customers, customers who bought a competitor, and users as well as buyers. Ask what problem they were solving, what they would do without the product, and what they pay for it. Win and loss notes and sales pipeline data show whether demand is repeatable. The usual mistake is relying on founder-supplied references and accepting stated intent in place of renewals and expansions.

WORKED EXAMPLE: DILIGENCE ON PALLANT HR

Pallant HR is an invented human resources software company. Its dashboard shows ARR of 6.0m from 40 customers. Last month it invoiced 0.44m. The largest customer pays 1.2m and the top three pay 2.4m together. Customers have bought 5,000 seats and 3,100 are active in the last 30 days. Twelve pilots ended in the last year and four converted to paid contracts. Plan the diligence. Convention: figures in £, monthly invoicing annualised by multiplying by twelve.

Answer: Invoiced run-rate is 5.28m against 6.0m reported, the top customer is 20% of ARR, 62% of seats are active and pilot conversion is 33%; diligence should reconcile the gap and test the largest renewal first.

> **Interview tip:** Give the reconciliation first, then concentration, utilisation and conversion in turn, and finish by saying which reference calls you would insist on that the founder did not suggest.

INT.VM.2.c · Diligence

Assess a founding team and the technology, test gross margin sensitivity for products built on third-party models, and recognise red flags that should stop or reshape a deal.

Team diligence asks whether these founders can build this company: founder-market fit, complementary skills, how they handle disagreement, and whether good people join and stay. Back-channel references beyond the names supplied, and a look at who has left and why, are more informative than the pitch. Check the cap table for dead equity (a departed founder with a large unvested or vested stake), vesting, and signed IP assignments from every founder and contractor. Technical diligence covers architecture and whether it scales, security practice, open-source licence exposure, data rights, and key-person risk where one engineer holds the core. For products built on third-party models, test gross margin: cost per active user, how it varies with heavy usage, and whether the product can switch providers or use smaller models. Red flags include an ARR definition that changes, burn that does not reconcile to headcount, evasive answers, and a pitch that is more polished than the product. The usual mistake is treating technical diligence as a box to tick after the decision.

WORKED EXAMPLE: TECHNICAL DILIGENCE ON QUILLSTONE

Quillstone is an invented writing assistant sold at 30 a seat per month. Most of its cost of sales is fees paid to a third-party model provider, which come to 14.40 a seat per month on average. Work out gross margin and test three changes: the provider cuts its prices by 30%, average usage per seat doubles, and the product is moved to a smaller model for routine tasks. Decide what to diligence. Convention: figures in £, ignoring hosting and support costs.

Answer: Gross margin is 52% today, 66.4% if the provider cuts prices by 30%, and 4% if usage doubles at a fixed seat price; the diligence question is the spread of cost per seat and whether the product can control it.

> **Interview tip:** Give the margin, then show how fragile it is to usage with one number. Ask for the distribution of cost per seat rather than the average.