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Beyond Startup Counts: Using Valuation Outcomes to Assess Sector-Level Economic Promise in the Dutch Startup Ecosystem

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Abstract
Entrepreneurial ecosystems are commonly assessed using activity-based indicators such as startup counts, accelerator participation, funding rounds, and policy support programmes. While these measures capture ecosystem activity, they do not necessarily reflect valuation-based economic promise. This study examines how observed startup valuations can provide an additional perspective on sector-level economic promise within an observed sample of the Dutch startup ecosystem. The analysis uses 63 startups across 21 sectors and incorporates three valuation sources: investor-negotiated valuations derived from completed investment transactions, professional valuations conducted for fundraising purposes, and revenue-based valuations derived from measurable monthly recurring revenue (MRR) or annual recurring revenue (ARR). The study is grounded in signalling theory and informed by the resource-based view. Using descriptive sector-level analysis, it examines value capture, valuation intensity, participation-value alignment, and cross-sector concentration. Valuation is highly concentrated. ICT/Technology/Software accounts for 67.5% of total observed valuation, while Agriculture & Food accounts for 13.4%. Together, these two sectors represent 19.0% of the startups but 80.9% o f observed valuation. The findings show that startup participation and valuation-based economic promise are not evenly aligned across sectors. The study contributes by extending the use of startup valuation from a firm-level financing metric to a sector-level indicator and provides a simple data-driven approach for comparing entrepreneurial activity with valuation-based outcomes. Valuation is treated as a market-based signal rather than realised economic performance, and the findings should be interpreted as exploratory rather than population-level estimates.
Keywords: Entrepreneurial ecosystems; startup valuation; signalling theory; resource-based view; sector analysis; venture capital; Dutch startup ecosystem.
JEL Classification: G24; G32; L26; M13; O31

1. Introduction

Startup ecosystems are important for innovation, job creation, and economic renewal. They include entrepreneurs, investors, universities, incubators, accelerators, public agencies, skilled workers, professional services, and customers. The ecosystem perspective is useful because startups do not grow in isolation but depend on the wider environment in which they operate. Entrepreneurial ecosystems have been described as systems of interconnected actors and factors that support or constrain productive entrepreneurship [1,2]. Research also suggests that entrepreneurial outcomes are shaped not only by individual founders but also by institutions, resource allocation processes, and broader ecosystem conditions [3].

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Despite this growing interest, ecosystem performance is still often assessed through activity-based indicators. Common measures include the number of startups, accelerator participants, funding rounds, and policy-supported ventures. These indicators are useful because they show the level of entrepreneurial activity, but they do not necessarily reflect economic value. A sector may contain many startups but generate relatively limited value, while another sector may contain fewer startups but achieve much stronger outcomes. Brown and Mason [4] argue that entrepreneurial ecosystems are heterogeneous and spatially uneven or "spiky." This suggests that ecosystem assessment cannot be fully understood through activity measures alone.

This issue is particularly important in startup finance. Startup outcomes are uncertain and highly uneven. Venture capital research shows that investment returns are often strongly skewed, with a small number of ventures generating a large share of total value [5,6]. As a result, ecosystems with similar levels of startup activity may differ substantially in their economic potential. Measuring ecosystem performance only through startup counts may therefore overlook important differences in valuation outcomes.

This study uses observed valuation outcomes to examine sector-level economic promise within the Dutch startup ecosystem. Valuation is not treated as the true or final value of a startup. Instead, it is viewed as a market-based signal. It reflects how investors, professional assessors, and revenue-based valuation evidence assess future growth, scalability, and risk. Previous research shows that startup valuations are influenced by uncertainty, contractual arrangements, growth expectations, market opportunities, and investor perceptions [7,8]. Although valuation does not guarantee future success, it provides an observable indication of market-perceived economic promise.

The study focuses on sectors rather than individual startups. Sectors differ in scalability, technology, revenue models, regulation, capital requirements, and investor familiarity. Sectoral innovation research also shows that industries differ in their knowledge bases, technologies, actors, institutions, and demand conditions [9]. These differences influence how startups develop and how they are valued. As a result, sector-level analysis provides a useful way to examine why some areas of startup activity show stronger valuation outcomes than others.

This study therefore uses valuation as an outcome-oriented indicator. It does not assume that valuation is equivalent to realised economic impact or that sectors with higher valuations are socially more important than others. Instead, the study makes a more focused claim: observed valuation outcomes can help identify where market-perceived economic promise is concentrated. In this way, valuation can complement existing ecosystem indicators and provide an additional perspective on ecosystem performance.

The main research question is: Which startup sectors within the observed sample of the Dutch startup ecosystem show the highest valuation-based economic promise when assessed through observed valuation outcomes? Four sub-questions guide the analysis. First, how is total valuation distributed across sectors? Second, how does valuation per startup differ between sectors? Third, how concentrated is valuation across sectors? Fourth, how does startup participation compare with value capture?

The analysis is based on a purposive sample of 63 Dutch startups with defensible valuation evidence. This study makes three contributions. First, it extends the use of startup valuation from the firm level to the sector level by examining valuation outcomes across sectors. Second, it combines signalling theory and the resource-based view (RBV) to link startup valuation signals with ecosystem assessment. Third, it contributes to entrepreneurial ecosystem research by showing that startup

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activity and valuation-based economic promise do not necessarily move together. In doing so, the study uses sector-level analysis as a meso-level perspective between individual startups and the ecosystem as a whole.

This provides a simple data-driven approach for comparing entrepreneurial activity with valuation-based outcomes across sectors.

2. Literature Review and Theoretical Background

Startup Valuation and Uncertainty

Valuing early-stage startups is difficult because most startups do not have stable profits, long operating histories, or predictable cash flows. Traditional valuation methods can be applied, but they depend heavily on assumptions about future growth, revenue, and risk [10,11]. Because these assumptions are uncertain, startup valuation is often better viewed as an estimate of future potential rather than a precise measure of current value [12].

Research in venture capital supports this view. Gornall and Strebulaev [8] show that reported startup valuations may differ from fair value because investor contracts often include special rights and protections. Similarly, Gompers et al. [7] found that investors consider factors such as founder quality, market opportunity, product characteristics, business models, and industry conditions when making valuation decisions. Non-financial factors also play an important role because many startups have limited historical performance data available for analysis [12,13].

However, valuation should not be treated as the same thing as business performance. Unlike realised profits, revenues, employment growth, or successful exits, startup valuations reflect expectations about future opportunities [11,13]. These expectations may be influenced by management quality, market size, technology, scalability, and investor confidence. Valuation should therefore be interpreted as a signal of perceived future promise rather than proof of future success.

Signalling Theory

Signalling theory explains how decision-makers use observable signals when information is incomplete or uncertain [14]. This situation is common in startup markets because investors cannot know with certainty which ventures will survive, grow, or become profitable [15,16]. As a result, investors rely on signals such as founder experience, customer adoption, funding rounds, strategic partnerships, and sector reputation.

In this study, startup valuation is treated as a market-based summary signal. Investor-negotiated valuations indicate that external investors were willing to commit resources at a particular valuation. Professional valuations conducted by banks, venture capital firms, or valuation specialists provide an externally produced assessment of value. Revenue-based valuations indicate that a startup has already achieved some degree of commercial traction.

Valuation can therefore be seen as a summary measure reflecting multiple underlying signals. A startup's valuation may capture investor confidence, growth expectations, market opportunity, technological capability, founder quality, and commercial traction. Although this study does not observe all of these elements individually, valuation provides an observable outcome that reflects their combined influence. Signalling theory therefore provides a foundation for comparing valuation outcomes across sectors.

Resource-Based View

While signalling theory explains why valuation outcomes are informative, the resource-based view (RBV) provides a perspective on why valuation outcomes may differ across sectors. According to Barney [17], organisations perform differently because they possess different resources and

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capabilities. Wernerfelt [18] similarly argued that firms can be understood through the resources they control, while later research highlighted the importance of capabilities in creating long-term advantage [19].

This study applies RBV at the sector level. Although sectors are not firms, they differ in the resources, opportunities, and constraints that startups face. Some sectors provide greater opportunities for scalability, recurring revenue generation, knowledge sharing, and investor interest. Other sectors may require larger capital investments, longer development periods, or more extensive regulatory approval.

These differences may contribute to different valuation outcomes across sectors. As a result, sectors with similar numbers of startups may still generate very different levels of valuation.

Entrepreneurial Ecosystems and Sector Differences

Researchers have increasingly argued that ecosystems should not be evaluated only by counting startups. Stam [1] suggests that policymakers should focus on generating productive entrepreneurship rather than simply increasing startup numbers. Similarly, Content et al. [20] show that entrepreneurial ecosystems shape the relationship between entrepreneurial activity and regional economic growth.

This argument is further supported by sectoral innovation systems research. Malerba [9] shows that sectors differ in their technologies, institutions, demand conditions, and knowledge bases. As a result, sectors provide different environments for innovation and growth. These differences suggest that startup valuation outcomes may vary systematically across sectors, even within the same entrepreneurial ecosystem.

Skewed Startup Outcomes and Value Concentration

A final consideration is that entrepreneurial and venture capital outcomes are not evenly distributed. Venture capital and private-equity research documents skewed and heterogeneous return distributions [5,6,21]. Research on high-growth firms reaches a related conclusion, showing that a relatively small group of rapidly growing firms accounts for a disproportionate share of net employment growth [22].

To examine these patterns, the present study considers not only total sector valuation but also valuation intensity, participation-value alignment, and value concentration. Together, these indicators provide a broader picture of the relationship between entrepreneurial activity and perceived economic value. In doing so, the study responds to calls for ecosystem measures that focus on outcomes and value creation rather than startup quantity alone [1,20].

These arguments provide the basis for the sector-level conceptual framework developed in the next section.

3. Conceptual Framework

Building on the literature above, the framework translates startup-level valuation signals into sector-level indicators of economic promise.

The framework starts with startup-level valuation signals. These signals arise from investor-negotiated valuations, professional assessments, or revenue-based valuation methods. These signals may differ across sectors because of characteristics such as scalability, resource availability, investor familiarity, industry knowledge, regulation, and market validation opportunities.

Startup-level valuations are then aggregated to the sector level. When valuations are combined within sectors, they provide an indication of sectoral economic promise. In this study, sectoral

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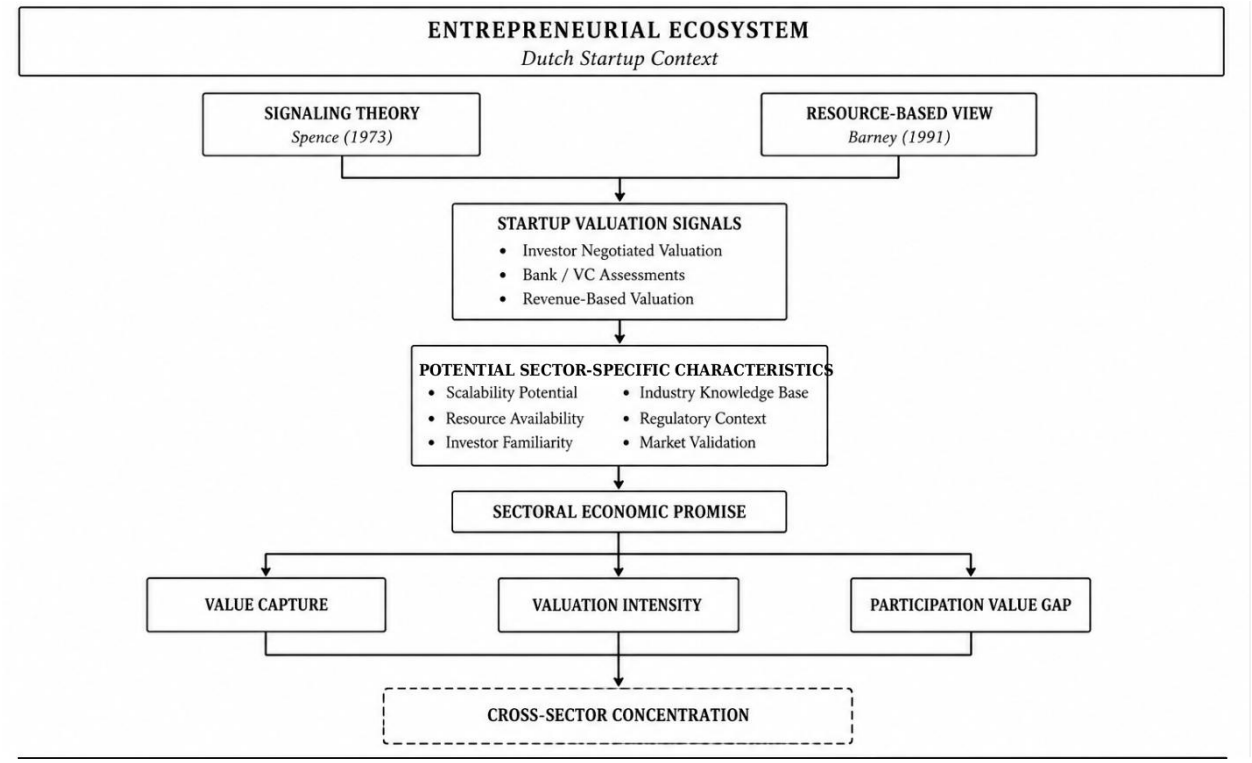
economic promise refers to the extent to which a sector demonstrates market-perceived potential for future value creation.

Sectoral economic promise is assessed using three indicators. The first is value capture, which shows how much total valuation is held by a sector. The second is valuation intensity, which shows the average valuation per startup within a sector. The third is the participation-value gap, which compares a sector's share of startups with its share of total valuation. Together, these indicators provide a structured view of sector-level valuation outcomes.

Finally, the combined outcomes reveal the level of cross-sector concentration within the ecosystem. If a small number of sectors capture a large share of total valuation, valuation is concentrated. If valuation is distributed more evenly across sectors, concentration is lower. This allows the study to identify where market-perceived economic promise is concentrated within the observed Dutch startup sample.

Figure 1

Conceptual underpinnings of the study



Note: The model integrates signalling theory and the resource-based view to frame how startup valuation signals and potential sector-specific characteristics relate to sectoral economic promise and cross-sector concentration.

The framework translates firm-level valuation signals into sector-level ecosystem indicators. In doing so, it connects entrepreneurial finance research, which usually examines valuation at the firm or investment level, with entrepreneurial ecosystem research, which often examines system-level activity and performance. This meso-level perspective provides a way to examine how startup activity and market-perceived economic promise differ across sectors.

4. Materials and Methods

4.1 Research Design and Sample

This study adopts an exploratory, descriptive, cross-sectional research design. The purpose is not to predict the success of individual startups or establish causal relationships between sector

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membership and valuation outcomes. Instead, the study explores how valuation outcomes are distributed across sectors and whether valuation-based economic promise appears concentrated in particular parts of the observed startup ecosystem.

The unit of observation is the startup because valuation information originates at the firm level. However, the unit of analysis is the sector because startup valuations are aggregated to examine sector-level patterns. Consequently, the findings should be interpreted as evidence of sectoral valuation patterns rather than indicators of the future performance of individual startups.

The empirical sample consists of 63 startups operating within the Dutch startup ecosystem. The sample is purposive rather than representative and includes startups that met the valuation inclusion criteria and agreed to participate in the study. Data were collected between August 2025 and March 2026. The participating startups were drawn from a broader pool of approximately 200 startups supported by the facilitating organisation. The organisation provided access to valuation-related information that was not available solely through public startup databases. However, its role was limited to facilitating data access and did not influence valuation outcomes, analytical decisions, or the interpretation of findings.

To improve comparability, all startups included in the study were at a broadly similar stage of development, namely the seed stage. This reduces variation associated with startup maturity and allows sector-level comparisons to focus more directly on differences in valuation outcomes rather than differences in organisational lifecycle stages.

The study therefore examines valuation patterns within an observed sample rather than attempting to represent the entire Dutch startup population. The cross-sectional design is also consistent with the available data, as valuation outcomes were observed at a single point in time, providing a snapshot of how valuation is distributed across sectors within the sample.

4.2 Inclusion and Exclusion Criteria

To ensure methodological consistency, startups were included only when they possessed a defensible valuation signal. Three valuation routes were accepted.

The first consisted of investor-negotiated valuations derived from completed external investment transactions. These valuations reflect agreements reached between founders and investors and therefore provide market-based assessments of startup value.

The second consisted of professionally assessed valuations conducted by banks, venture capital firms, or other recognised financial institutions for fundraising purposes. Although these valuations are not transaction-based, they are produced through structured valuation processes and provide externally validated estimates of startup value.

The third consisted of revenue-based valuations derived from measurable Monthly Recurring Revenue (MRR) or Annual Recurring Revenue (ARR). MRR refers to predictable recurring revenue generated on a monthly basis, whereas ARR represents annual recurring revenue. For startups without investor-negotiated or professionally assessed valuations, these measures enabled valuation through stage-appropriate revenue multiple approaches commonly used in startup finance [11,13].

Startups without valuation information and without measurable revenue were excluded from the sample. This criterion reduced the number of available observations but ensured that all included startups contributed economically defensible valuation evidence. Although the three valuation routes are not identical, they provide more reliable evidence than informal founder estimates or unsupported assumptions regarding firm value.

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4.3 Measures and Analytical Procedure

The study uses four sector-level indicators derived from startup valuation data. Sector participation was measured as the number of startups within each sector. This indicator captures the relative level of entrepreneurial activity across sectors. Sectoral value capture was measured as the total valuation of all startups within a sector. This measure indicates how much observed valuation is concentrated within a particular sector. Valuation intensity was calculated by dividing total sector valuation by the number of startups within that sector. This indicator adjusts for differences in the number of startups across sectors and measures the average valuation per startup. Participation-value alignment compares sector participation with sector valuation outcomes. Participation share represents the percentage of startups belonging to a sector, while valuation share represents the percentage of total valuation captured by that sector. The participation-value gap was calculated as valuation share minus participation share. Positive values indicate that a sector captures a larger share of valuation than its participation level would suggest, whereas negative values indicate the opposite.

The analysis was conducted in four stages. First, descriptive statistics were calculated for the full sample, including total valuation and average valuation per startup. Second, sectors were ranked according to total valuation in order to identify where valuation-based value capture was concentrated. Third, sectors were compared using valuation intensity to determine whether some sectors generated higher average valuation outcomes than others. Fourth, participation share was compared with valuation share to identify whether entrepreneurial activity and valuation-based outcomes were aligned across sectors.

The analytical approach is intentionally straightforward and exploratory. The goal is not to test causal relationships but to provide a transparent assessment of sector-level valuation patterns. Total valuation identifies where observed valuation is concentrated, valuation intensity adjusts for differences in the number of startups, and participation-value alignment shows whether startup activity corresponds with valuation outcomes. Together, these measures provide a broader perspective on ecosystem structure than startup counts alone and directly reflect the conceptual framework developed in this study.

Given the exploratory design and the small number of startups in several sectors, the analysis remains descriptive rather than inferential.

5. Results

5.1 Descriptive Overview of Sectoral Valuation Outcomes

Table 1 presents the sectoral distribution of the 63 startups included in the study. The total observed valuation of the sample is €305.2 million, with an average valuation of €4.84 million per startup. However, this average should be interpreted with caution because valuation is not evenly distributed across sectors. The results show a clear concentration of value in a small number of sectors, particularly ICT/Technology/Software and Agriculture & Food. Together, these two sectors account for a large majority of the total observed valuation, although they represent only a relatively small part of the overall sample.

The ICT/Technology/Software sector records the highest total valuation in the sample, with €206.0 million. This represents 67.5% of the total observed valuation, while the sector includes only six startups. Agriculture & Food has the second-highest total valuation, with €41.0 million, representing 13.4% of the total sample valuation. Both sectors contain the same number of startups, yet their

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valuation outcomes differ substantially. This indicates that the number of startups in a sector does not necessarily correspond to the amount of valuation captured by that sector.

The remaining sectors capture much smaller shares of total valuation. Manufacturing, Industry & Materials accounts for €8.0 million, followed by Artificial Intelligence with €7.0 million and Web3, Blockchain & Digital Assets with €5.5 million. Other sectors, including Health, Life Sciences & Wellness, Sustainability & Climate, Education & Training, Deeptech, R&D & Science, and Retail & Consumer Goods, show lower valuation shares in the observed sample. These findings should not be interpreted as evidence that these sectors are less important; they show only that their observed valuation shares are lower in the current dataset.

Overall, Table 1 shows that the distribution of observed valuation differs strongly from the distribution of startup participation. A simple count of startups would suggest a more balanced ecosystem, while the valuation data show that observed valuation is concentrated mainly in a few sectors. This supports the argument that startup counts alone provide an incomplete picture of sector-level economic promise.

Table 1: Sectoral valuation outcomes

Sector	Startups	Valuation (€m)	Valuation per startup (€m)	Valuation share (%)
ICT / Technology / Software	6	206.00	34.33	67.5
Agriculture & Food	6	41.00	6.83	13.4
Manufacturing, Industry & Materials	2	8.00	4.00	2.6
Artificial Intelligence	4	7.00	1.75	2.3
Web3, Blockchain & Digital Assets	2	5.50	2.75	1.8
Creative Industries (Media, Art & Games)	3	5.00	1.67	1.6
Marketing, Sales & Communication	2	4.00	2.00	1.3
Health, Life Sciences & Wellness	3	3.50	1.17	1.1
Sustainability & Climate	2	3.00	1.50	1.0
Social Impact, Community & Diversity	3	2.70	0.90	0.9
Transport, Mobility & Logistics	2	2.50	1.25	0.8
HR, Recruitment & Workforce	4	2.50	0.62	0.8
Real Estate & Construction	4	2.50	0.62	0.8
Finance, Fintech & Insurance	3	1.80	0.60	0.6
Hospitality, Tourism & Events	3	1.70	0.57	0.6
Cybersecurity	2	1.50	0.75	0.5
Legal, IP & Compliance	2	1.50	0.75	0.5
Education & Training	2	1.50	0.75	0.5
Deeptech, R&D & Science	3	1.50	0.50	0.5
Consulting & Business Support Services	2	1.30	0.65	0.4
Retail & Consumer Goods	3	1.20	0.40	0.4

Source: Authors' computations.

5.2 Valuation Intensity

Table 2 ranks sectors according to valuation intensity, measured as valuation per startup.

The ICT/Technology/Software sector has the highest valuation intensity, with €34.33 million per startup. This is considerably higher than all other sectors in the sample. Agriculture & Food follows with €6.83 million per startup, while Manufacturing, Industry & Materials records €4.00 million per

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startup. These results show that the highest-valued sectors also rank highly in average valuation per startup.

Several sectors show moderate valuation intensity, including Web3, Blockchain & Digital Assets at €2.75 million per startup, Marketing, Sales & Communication at €2.00 million, Artificial Intelligence at €1.75 million, Creative Industries at €1.67 million, and Sustainability & Climate at €1.50 million. These values suggest that some sectors have identifiable valuation signals, but their average valuation per startup remains far below the level observed in ICT/Technology/Software.

At the lower end of the table, 11 sectors record valuation intensity below €1.00 million per startup. This does not mean that these sectors are unsuccessful or unimportant. Instead, it shows that within the observed sample their average valuation per startup is lower at the time of analysis.

The valuation intensity results show that sectors with similar numbers of startups can display substantially different average valuation outcomes.

Table 2

Valuation intensity by sector

Rank	Sector	Valuation per startup (€m)	Startups	Valuation (€m)
1	ICT / Technology / Software	34.33	6	206.00
2	Agriculture & Food	6.83	6	41.00
3	Manufacturing, Industry & Materials	4.00	2	8.00
4	Web3, Blockchain & Digital Assets	2.75	2	5.50
5	Marketing, Sales & Communication	2.00	2	4.00
6	Artificial Intelligence	1.75	4	7.00
7	Creative Industries (Media, Art & Games)	1.67	3	5.00
8	Sustainability & Climate	1.50	2	3.00
9	Transport, Mobility & Logistics	1.25	2	2.50
10	Health, Life Sciences & Wellness	1.17	3	3.50
11	Social Impact, Community & Diversity	0.90	3	2.70
12	Cybersecurity	0.75	2	1.50
13	Legal, IP & Compliance	0.75	2	1.50
14	Education & Training	0.75	2	1.50
15	Consulting & Business Support Services	0.65	2	1.30
16	HR, Recruitment & Workforce	0.62	4	2.50
17	Real Estate & Construction	0.62	4	2.50
18	Finance, Fintech & Insurance	0.60	3	1.80
19	Hospitality, Tourism & Events	0.57	3	1.70
20	Deeptech, R&D & Science	0.50	3	1.50
21	Retail & Consumer Goods	0.40	3	1.20

Source: Authors' computations.

5.3 Participation–Value Alignment

Table 3 compares each sector's participation share with its valuation share. Participation share refers to the percentage of startups represented by a sector, while valuation share refers to the percentage of total observed valuation captured by that sector. The gap between these two

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measures shows whether a sector captures more or less valuation than would be expected based only on its share of startups.

The strongest positive gap is observed in the ICT/Technology/Software sector. This sector represents 9.5% of the startups but captures 67.5% of total observed valuation, producing a positive gap of +58.0 percentage points. This result shows a strong mismatch between participation and value capture. In other words, ICT/Technology/Software does not dominate the sample in terms of the number of startups, but it dominates the sample in terms of valuation.

Agriculture & Food also shows a positive participation-value gap. The sector represents 9.5% of the startups and captures 13.4% of total valuation, resulting in a positive gap of +3.9 percentage points. Although this gap is much smaller than that of ICT/Technology/Software, Agriculture & Food still captures a larger share of valuation than its share of startups.

Most other sectors show negative participation-value gaps, meaning that their share of startups is larger than their share of total observed valuation. The largest negative gaps are observed in HR, Recruitment & Workforce and Real Estate & Construction (-5.5 percentage points each), followed by Retail & Consumer Goods (-4.4), Deeptech, R&D & Science (-4.3), and Finance, Fintech & Insurance and Hospitality, Tourism & Events (-4.2 each).

The participation-value gap is especially useful because it directly compares two different views of the ecosystem. Participation share shows where entrepreneurial activity is located, while valuation share shows where market-perceived economic value is concentrated. When these two indicators differ strongly, startup participation and valuation capture are clearly not distributed in the same way. This is one of the central empirical findings of the study.

Taken together, Tables 1, 2 and 3 show a consistent pattern. Table 1 demonstrates that total valuation is highly concentrated. Table 2 shows that this concentration remains visible even after adjusting for the number of startups. Table 3 confirms that startup participation and valuation capture are not aligned across sectors. These findings support the study's main argument that startup counts alone provide an incomplete picture of sector-level valuation outcomes. Valuation-based indicators provide an additional and more outcome-oriented perspective on sector-level economic promise.

Table 3

Participation–value alignment

Sector	Participation share (%)	Valuation share (%)	Gap (percentage points)
ICT / Technology / Software	9.5	67.5	+58.0
Agriculture & Food	9.5	13.4	+3.9
Manufacturing, Industry & Materials	3.2	2.6	-0.6
Artificial Intelligence	6.3	2.3	-4.1
Web3, Blockchain & Digital Assets	3.2	1.8	-1.4
Creative Industries (Media, Art & Games)	4.8	1.6	-3.1
Marketing, Sales & Communication	3.2	1.3	-1.9

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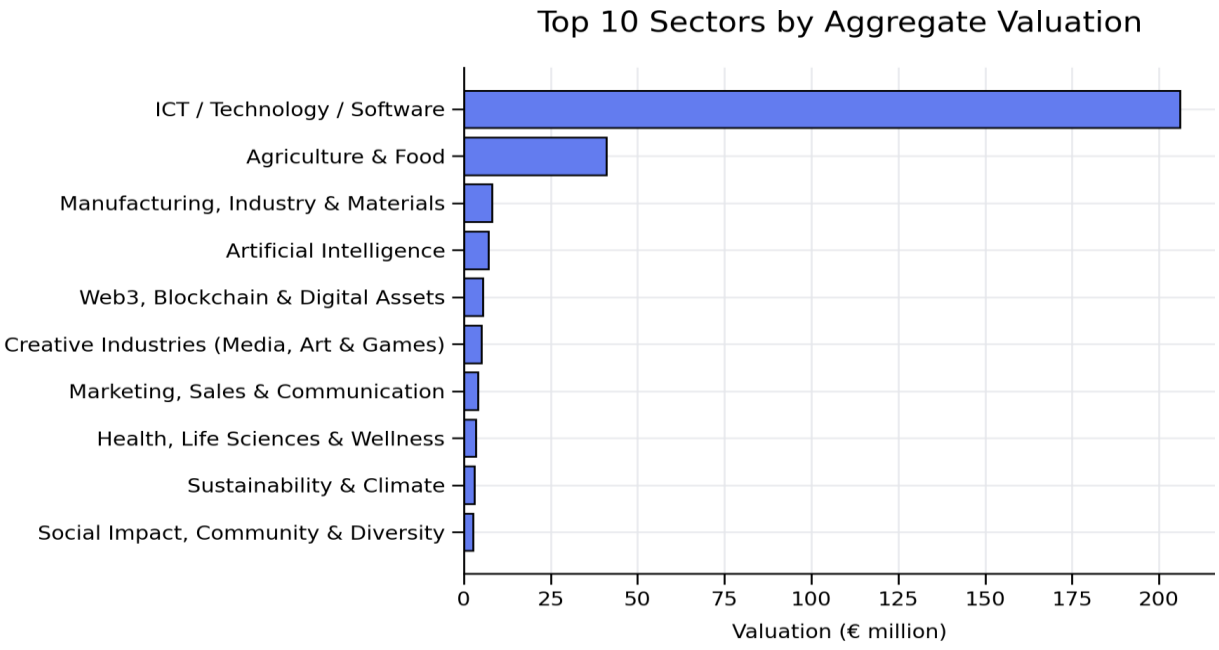
Sector	Participation share (%)	Valuation share (%)	Gap (percentage points)
Health, Life Sciences & Wellness	4.8	1.1	-3.6
Sustainability & Climate	3.2	1.0	-2.2
Social Impact, Community & Diversity	4.8	0.9	-3.9
Transport, Mobility & Logistics	3.2	0.8	-2.4
HR, Recruitment & Workforce	6.3	0.8	-5.5
Real Estate & Construction	6.3	0.8	-5.5
Finance, Fintech & Insurance	4.8	0.6	-4.2
Hospitality, Tourism & Events	4.8	0.6	-4.2
Cybersecurity	3.2	0.5	-2.7
Legal, IP & Compliance	3.2	0.5	-2.7
Education & Training	3.2	0.5	-2.7
Deeptech, R&D & Science	4.8	0.5	-4.3
Consulting & Business Support Services	3.2	0.4	-2.7
Retail & Consumer Goods	4.8	0.4	-4.4

Source: Authors' computations.

5.4 Cross-Sector Concentration

Figure 2

Top 10 sectors by aggregate valuation



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Note. Values are reported in € million and are based on the sector-level analytical sample.

The results indicate substantial cross-sector concentration of valuation. ICT/Technology/Software accounts for 67.5% of total observed valuation, while ICT/Technology/Software and Agriculture & Food together account for 80.9%. This pattern is consistent with research showing that startup and venture-capital outcomes are often highly uneven [5,6,21].

Valuation concentration should not automatically be interpreted as either positive or negative. It describes where observed valuation is concentrated within this sample rather than demonstrating that high-valuation sectors are inherently more important.

6. Discussion

The findings show that valuation-based analysis provides a different perspective on startup ecosystems than activity-based measures alone. Although the observed sample includes startups from a wide range of sectors, valuation outcomes are concentrated in a small number of sectors. ICT/Technology/Software and Agriculture & Food account for a disproportionately large share of total observed valuation relative to their share of startups. This finding supports earlier ecosystem research arguing that entrepreneurial activity and valuation-based outcomes should be considered separately because ecosystem participation does not necessarily translate into valuation-based economic promise [1,4].

The results are consistent with signalling theory. Startup markets are characterised by substantial uncertainty because investors, lenders, and other stakeholders cannot directly observe future startup quality or performance [14]. Valuation can be understood as a signal reflecting broader assessments of startup potential rather than realised economic performance. The concentration of valuation in ICT/Technology/Software and Agriculture & Food is consistent with stronger market valuation signals in these sectors, although the present data do not identify which underlying signals produced these outcomes [23,24].

The findings are also compatible with the resource-based view (RBV). RBV argues that differences in outcomes may arise because organisations have access to different resources, capabilities, and opportunities [17,18]. While the present study does not measure firm-level resources or capabilities directly, the observed sector differences are consistent with the possibility that resource configurations, scalability, and capability differences contribute to heterogeneous valuation outcomes. This interpretation is therefore theoretical rather than a direct empirical test of RBV.

The findings are also consistent with entrepreneurial ecosystem and sectoral innovation research. Entrepreneurial ecosystems are shaped by interactions among finance, talent, institutions, networks, knowledge, and infrastructure [2,25]. At the same time, sectors differ in their technological opportunities, demand conditions, knowledge structures, and institutional environments [9]. The observed sector differences are consistent with this contextual perspective, although the study does not measure these sector characteristics directly.

Another important finding concerns value concentration. Venture capital and private-equity research documents substantial skewness and heterogeneity in investment outcomes [5,6,21]. The present study suggests that a similar concentration pattern may also be visible at the sector level. Within the observed sample, valuation is concentrated primarily in ICT/Technology/Software and Agriculture & Food. This finding reinforces the argument that aggregate ecosystem measures can hide significant differences in where observed valuation is concentrated.

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Theoretical Contributions

Three contributions follow from the study. First, it extends startup valuation research beyond the individual startup level by aggregating valuation outcomes to the sector level. This provides a way to examine broader ecosystem patterns and sectoral differences in perceived economic potential.

Second, the study combines signalling theory and the resource-based view in a sector-level framework. Signalling theory explains why valuation may serve as an observable market signal under uncertainty, while RBV provides a perspective on why valuation outcomes may differ across sectors. The study does not directly test firm-level resources or capabilities.

Third, the study contributes to entrepreneurial ecosystem research by distinguishing participation-based indicators from valuation-based outcomes and by using the sector as a meso-level perspective between individual firms and the ecosystem as a whole. Methodologically, the study uses a simple and transparent set of indicators comprising sectoral value capture, valuation intensity, participation-value alignment, and cross-sector concentration.

Practical and Policy Implications

Several practical implications emerge from the findings. For policymakers, the results suggest that startup counts should not be used as the sole indicator of ecosystem assessment. A sector with many startups does not automatically generate strong valuation outcomes, while a smaller sector may capture a disproportionate share of value. Ecosystem evaluation would therefore benefit from combining participation indicators with outcome-based measures such as valuation, employment growth, revenue growth, follow-on investment, innovation outputs, and social impact.

For investors, the findings highlight the importance of sector context. Valuation intensity and value capture patterns may help identify sectors that currently exhibit stronger market signals. However, sector-level indicators should complement rather than replace firm-level due diligence. Strong sectors can still contain weak ventures, while promising opportunities may exist in sectors with lower average valuation outcomes.

For accelerators, incubators, and ecosystem intermediaries, the findings suggest that programme evaluation should extend beyond the number of startups supported. Greater attention should be given to whether startups are developing credible signals of future growth, such as recurring revenue, customer adoption, external validation, strategic partnerships, and investor readiness.

Finally, the results suggest that sector context should be considered when designing ecosystem support rather than relying only on uniform measures of startup activity. The present analysis does not identify which policy instruments are most effective for individual sectors, but it can help indicate where participation and valuation outcomes diverge.

For ecosystem managers, these indicators provide a simple data-driven way to complement participation counts with observed valuation outcomes.

Limitations and Future Research

This study has several limitations. First, the analysis is based on cross-sectional data and therefore captures valuation outcomes at a single point in time. Startup valuations are influenced by changing market conditions, technological developments, and investment environments. Future research could examine how sectoral valuation patterns evolve over time using longitudinal datasets.

Second, valuation should not be interpreted as realised economic success. Valuation is a forward-looking assessment and reflects expectations as well as observable performance. Future studies could compare valuation outcomes with subsequent measures such as survival, revenue growth, employment growth, funding rounds, acquisitions, and exits.

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Third, the study is based on an observed sample of 63 startups with defensible valuation signals rather than a complete representation of the Dutch startup ecosystem. The findings should therefore be interpreted as exploratory evidence rather than population-level estimates. Future studies involving larger and more representative datasets would strengthen external validity and allow stronger generalisation. The data-access setting may also introduce selection effects because startups connected to the facilitation environment may differ from the wider startup population.

Fourth, the number of startups varies across sectors, and several sectors contain only a small number of observations. Sector-level aggregation may therefore mask within-sector variation or the influence of individual high-valuation startups. The findings should consequently be interpreted as indicative patterns rather than definitive assessments of sector-level valuation performance. Future research could examine firm-level dispersion and outlier sensitivity where confidentiality permits.

Fifth, the study combines three different valuation sources: investor-negotiated valuations, professionally assessed valuations, and revenue-based valuations. Although all three provide defensible valuation signals for the exploratory purpose of this study, they are generated through different valuation mechanisms and should not be interpreted as perfectly equivalent measurements. The present analysis therefore treats them as observed valuation signals and does not claim that they have identical measurement properties. Future research should conduct source-specific and valuation-method sensitivity analyses.

Finally, startup classification presents an inherent challenge because many ventures operate across multiple domains. Assigning each startup to a single sector improves analytical clarity but may oversimplify complex business models. Future research could explore multi-sector classification approaches to better represent hybrid ventures.

Future studies could extend this work through cross-country comparisons, longitudinal valuation analysis, links between valuation and realised performance, and qualitative evidence from investors, founders, and ecosystem stakeholders.

7. Conclusions

This study developed a valuation-based approach for examining sector-level economic promise within an observed sample of the Dutch startup ecosystem. Drawing on signalling theory and the resource-based view, the study argued that startup valuation can be interpreted as a market-based signal of future potential and that sectors differ in their association with valuation outcomes.

The findings show that valuation outcomes are highly uneven across sectors. ICT/Technology/Software and Agriculture & Food account for a disproportionately large share of total observed valuation relative to their participation in the sample. This indicates that startup activity and valuation-based economic promise are not distributed in the same way.

The central message of the study is that startup activity and valuation-based economic promise are related but distinct dimensions of ecosystem assessment. Evaluating ecosystems solely through activity measures may overlook substantial differences in valuation outcomes across sectors. Combining participation indicators with valuation-based indicators therefore provides an additional perspective on ecosystem structure.

Given the nature of the dataset, the study should be viewed as an exploratory sector-level analysis rather than a definitive assessment of the Dutch startup ecosystem. Its primary contribution lies in demonstrating how sectoral valuation outcomes can reveal patterns that are largely invisible when attention is focused only on startup counts.

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Conflict of Interest
The authors declare no conflict of interest.
Data Availability Statement
The firm-level valuation data used in this study are not publicly available because they contain commercially sensitive information obtained through restricted access. The aggregated sector-level analytical data underlying Tables 1–3 may be made available by the corresponding author on reasonable request, subject to applicable confidentiality restrictions.
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