

Open Source Project Categorization Based on Growth Rate Analysis and Portfolio Planning Methods

Stefan Koch and Volker Stix
Vienna University of Economics and BA

Objective

- Classification of open source projects based on their growth rate.
This includes:
 - Code base
 - Developer number
 - Bug reports
 - Downloads
- Projection onto two dimensions
- Interpretation of the results using portfolio planing methods

Motivation

- Evaluation of open source projects gain more academic and business attention.
 - Open business readiness rating
 - Open source maturity model
 - and so on...
- Aggregated evaluations with detailed scoring depending on many variables

Motivation

- We choose to analyze on a higher level using repository of repositories on open source project data.
- Offers a top-level aggregate classification scheme.
- Visualization within well known portfolio planning techniques for top management

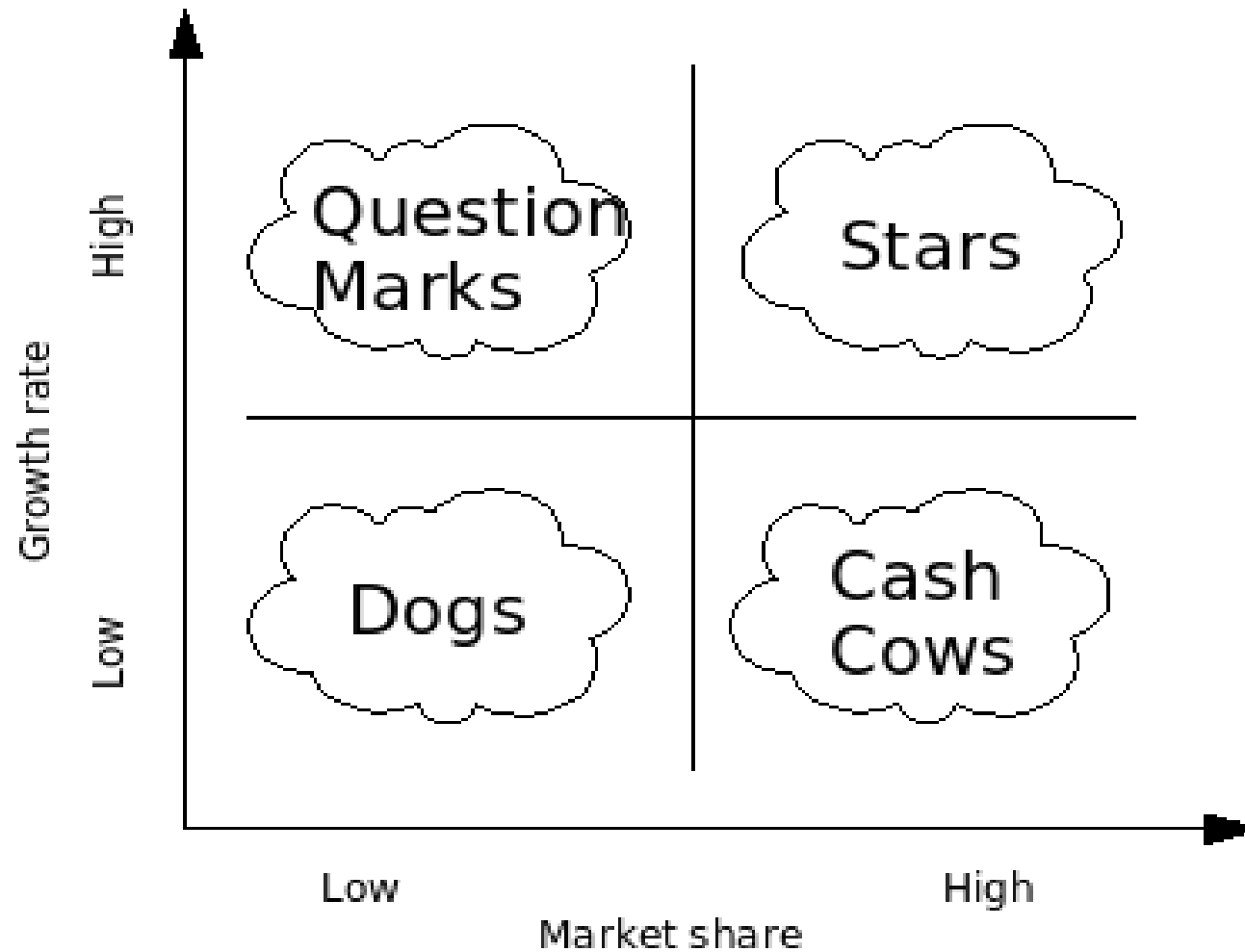
Growth rate analysis

- Development repositories used as source of data
- Analysis of growth pattern within monthly windows
 - Linear regression model: $S = a t + b$
 - Quadratic model: $S = a t^2 + b t + c$
- Classification into:
 - Sub-linear
 - Linear
 - Super-linear

Portfolio planning technique

- Applied over 20 years although little theoretical support but accepted as intuitive management support tool.
- We used the Boston consulting group (BCG) Matrix based on product life cycle model
- Align product along two dimensions
 - Market attractiveness (share of the firm) against
 - Market growth rate
- Classification of Segments

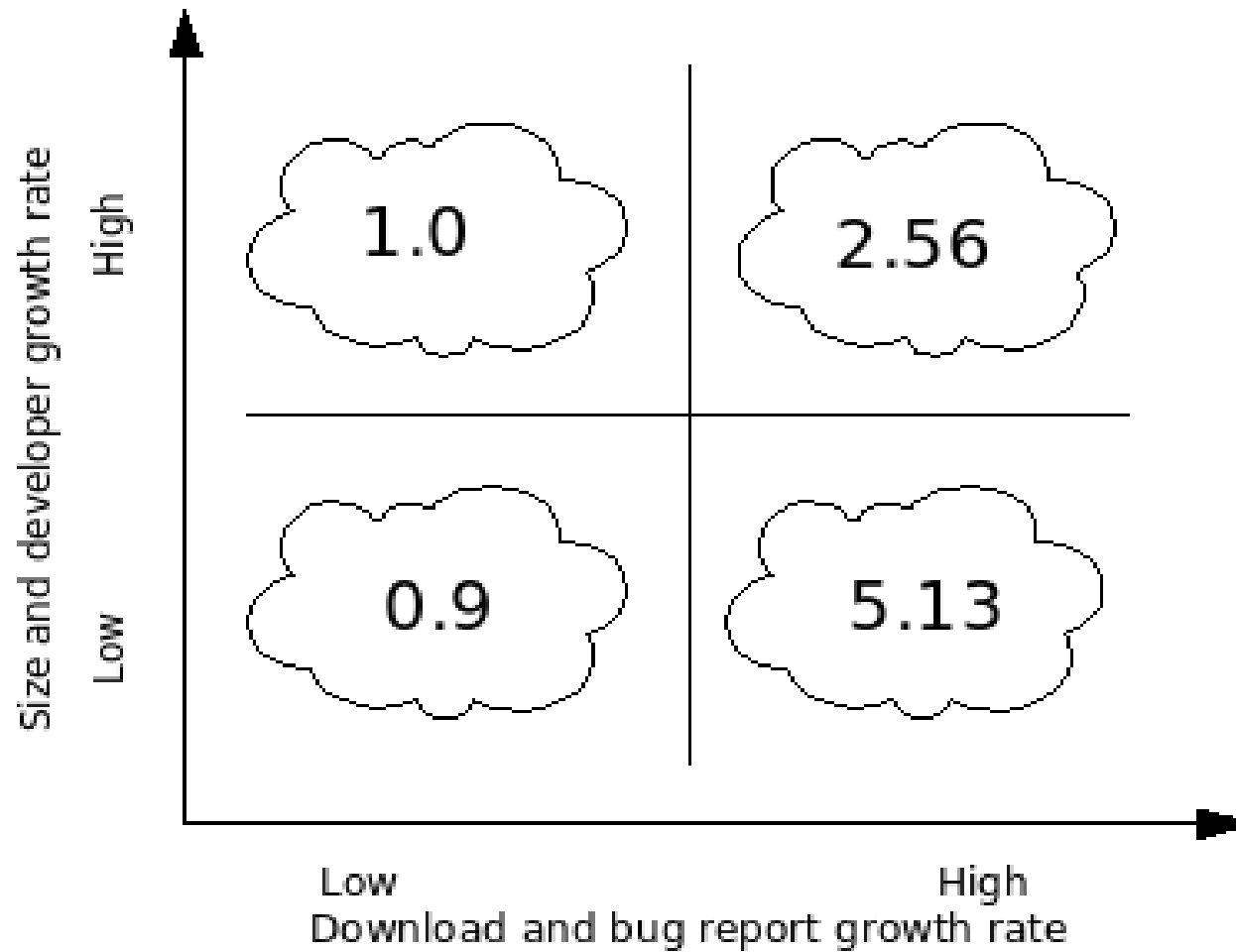
BCG Matrix



Open source classification

- Adaption of axes:
 - For growth rate we propose:
 - Growth rate in source code together with
 - Growth rate of developers.
 - For market share we propose:
 - Growth rate of bug reports together with
 - Growth rate of downloads.

OS project matrix



Derived strategies

- 1.0 - question marks: projects with risk/chance. High growth in size little adoption yet.
- 2.56 – stars: interesting candidate for any adoption especially for singular adoption
- 5.13 – chash cows: mature solution without emphasis on expansion. Candidate for portfolie and singular adoption
- 0.9 – dogs: project could be termed as failed. No candidate for OSS portfolio.

Conclusion and future research

- Provided top-level open source classification based on established portfolio techniques.
- Development of repository of repositories should be encouraged.
- Discussion of axes
- An empirical validation of the appropriateness of the classification