



Maastricht University

The effect of bricolage on large and mature organizations facing resource-constraints

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Table of content

Q1: Which course-related topic did you select and which problem statement merits further research?	4
Q2: Why is this problem statement academically intriguing? Which gap in the existing academic literature are you addressing?	5
Q3: Why is the problem statement practically relevant?	5
Q4: What empirical approach is most appropriate to examine your problem statement? ...	6
Further research	6
Q5: Reflect on your experience in using AI for the development of this proposal.	7
Reference list: learning materials in this course syllabus	7
Reference list: others	8
AI-prompts and results for Q1 to Q4.....	11

Q1: Which course-related topic did you select and which problem statement merits further research?

This research proposal will investigate the relationship between the price stock (proxy metric for business success) and the usage of bricolage in mature companies struggling with resource-constraints.

Bricolage is not a new entrepreneurial strategy. Its roots go back to 1967 and Lévi-Strauss who surfaced the idea (Baker & Nelson, 2005). Its theory has three pillars:

- “always to make do with ‘whatever is at hand.’” (Baker & Nelson, 2005)
- “Combining resources for new purposes” (Fisher, 2012)
- “Using resources at hand” (Fisher, 2012)

These factors combined create a new toolkit that allows early and nascent businesses to flourish.

However, bricolage does not only allow you to operate under constrained resources but the ability to even scale your impact (Bacq et al., 2015). Bricolage is an immensely powerful tool, but it has its criticism such as its inability to produce in-depth innovation.

Mature companies are considered mature because they already have developed and gathered resources, however, frequently the signs of the decline are ignored or missed which leads to the eventual decline (Schofield & Arnold, 1988). Furthermore, as seen in research (Christensen & Bower, 1996) there are only a few incumbents which managed to sustain their leading market share. This strengthens the need for a robust strategy that deals with declining resources caused by the decline of the market share.

The average age of a company from the S&P 500 is 20 years (Statista, 2024), so for a mature company will be considered one that has existed for longer than 7 years.

Resources are less quantifiable than a firm’s maturity. Some resources such as “advanced technologies and a high international orientation” (Hennart et al., 2021) are harder to compare than others such as the firm’s financial assets. For a resource to be considered valuable then it must “conceive of or implement strategies that improve its efficiency and effectiveness” (Barney, 1991) and the resource must “contribute or be involved in some way in the creation of a product or service that has use value to customers” (Bowman & Ambrosini, 2007).

Regarding resource constraints, cash on the balance sheet is just one metric that shows how a business is performing. Just ten percent of the companies from the S&P 500 accumulatively have 34% of all the cash in the S&P 500 (Krantz, 2024). These companies account for around 25% of the index but have 34% of all the cash. These alongside (Theissen et al., 2023) show that successful companies hold an increasing amount of cash and cash equivalents on the balance sheet. However, looking at the other 75% of the index, one notices that they own only 66% of all the cash. Thus, one can reason that they are more cash starved than the former group. This is just one metric which shows that not every mature company is experiencing resource abundance and looking into ways for optimization of already available resources is viable and necessary.

Q2: Why is this problem statement academically intriguing? Which gap in the existing academic literature are you addressing?

While bricolage is not a new concept, many recent papers have expanded its definition and application. However, what has been missing is the effect of bricolage on resource-constrained mature companies. This is a question raised by (Steffens et al., 2022) and remains unanswered.

“Bricolage impacts firm performance both positively and negatively” (Abid, Dowling, et al., 2023) this further strengthens the need for this research as this methodology can also harm the main objective.

The literature has identified that mature companies lack in multiple fields ranging from “innovation activity” (Pellegrino, 2017) to “lack of internal expertise” (Hewitt-Dundas, 2006). Bricolage can deal with these problems in newly emerging business and this paper will aim to uncover if it is suitable for large and mature organizations as well which are facing resource-constraints.

Bricolage is not the only way that a business can operate under constraints. Another strategy is effectuation (Sarasvathy, 2023). Effectuation works through welcoming instability. However, where effectuation falls short is the demonstration of “its practical implications” (Dias et al., 2019). This is where bricolage shines, it was created as a real-world solution to the lack of companies' resources.

Resource orchestration is yet another way for businesses to operate under constraints (Hitt et al., 2011). It includes three stages “Structuring”, “Bundling”, “Leveraging”. However, the problem with this theory is in the fact that it is primarily tailored to “young firms”.

Q3: Why is the problem statement practically relevant?

Operating under resource constraints is part of the everyday life of almost any business (Dopfer et al., 2017), (Thong, 2001), (Abid et al., 2023). The resource needs are different based on the market and the industry. In Singapore 68% of “Construction & Civil Engineering” companies cite “availability of manpower as challenge” (Singapore Business Federation (SBF) & Acorn Marketing & Research Consultants (Group) Pte Ltd, 2024). Furthermore, 33% of all business in Singapore cite “employee attitude, skills and productivity as key challenges” (Singapore Business Federation (SBF) & Acorn Marketing & Research Consultants (Group) Pte Ltd, 2024). These examples show that a firm could face multiple different limitations in resources that span across numerous fields and severity.

There is a common misconception that mature business is operating without resource constraints, however, (Hartung, 2011) shows many examples how seemingly monopolistic players have been dethroned by emerging businesses, this has happened numerous times. Thus, big mature businesses will need different strategies to help them navigate an environment that they have

mostly forgotten – declining resources. This is where bricolage will shine because it would allow them to “make use of” what they have in a completely new way, unlocking innovations that they did not envision.

Q4: What empirical approach is most appropriate to examine your problem statement?

To research the effect of bricolage on mature companies a quantitative method will be used.

To ease up the data collection, the research will focus on the publicly listed companies in the US. The companies will be filtered by age and those younger than 7 years will be dropped. The data for the analysis will be taken from (*List of All Stock Ticker Symbols - Stock Analysis*, 2024). The companies there are already aggregated by industry. This is vital because the impact of bricolage must be evaluated against companies that are peers not companies that are operating in completely different sectors.

Then the gathered companies will be filtered further by identifying which are resource constrained. The quick ratio tells you the amount of “company’s uncommitted liquid responses” (Smith et al., 1991). Furthermore, the quick ratio differs per sector (*Quick Ratio by Industry - FullRatio*, 2024), so the average for the sector will be used as a baseline and if the quick ratio is 50% worse of the baseline, then the company will be considered resource constrained.

Now, the companies are aggregated by industry and filtered by resource then a survey. To the companies left a survey will be sent containing questions regarding bricolage usage. The questions will be the following:

- If they use bricolage? (Yes/No question)
- If yes, since when? (Answer using a date in format 30-12-2000)

To evaluate if bricolage had a positive influence on the company, the increase of the stock price will be used as a proxy metric for success.

Now, multiple linear regressions will be run that evaluate businesses that use bricolage and ones that do not. If a company is using bricolage or not will be encoded as to 1 and 0. Then a linear regression will be run for every industry. It will look as follows:

$$Y = \beta_0 + x_1 \beta_1 + x_2 \beta_2 + \text{bias}$$

Where x_1 is the time of the stock price and x_2 is the encoded 0/1 if the company is using bricolage or not and Y is the price of the stock.

Before running any predictions, tests for the suitability of linear regression must be run. The tests are “Linearity”, “Independence”, “Homoscedasticity”, “Normality” (Su et al., 2012). If the linear regression conditions are violated, then some other algorithm will have to be used. There are many potential non-linear algorithms.

Further research

This research has many limitations, one of the main ones is that it defines resource constraint business as one struggling with debt in certain proportion according to the quick ratio.

Other limitations are the fact that it considers mature companies as ones that are over 7 years old, the fact that the research focuses only on US public companies, usage of stock price as a proxy for business success. One of the biggest limitations remains the fact that this proposal focuses on any usage of bricolage not a specific bricolage framework. All of these are areas for potential future research.

Q5: Reflect on your experience in using AI for the development of this proposal.

I have primarily used AI to ask for research gaps and explanation of different concepts. I have also used it to summarize material and paraphrase some texts. I have never copied directly the answer since I do not fully trust it. What has really worked out well for me is using AI-driven tools for surface level research. It can very easily summarize the main positives and negatives and compare one methodology against another one.

What I can say is that AI has positively impacted my writing experience and made me work faster, especially in concepts that are unknown to me.

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AI-prompts and results for Q1 to Q4

- Can you paraphrase with less repetition?
- Make into a paragraph not a bullet point list
- Define onset in "ageing process both at the onset of maturity"
- define reconceptualization
- define intra-country and inter-country
- What is financial bricolage?
- Entrepreneurial bricolage in scientific journals
- criticism of bricolage
- What is the difference between bricolage and effectuation?
- what is the limitation of effectuation which bricolage doesn't have
- resource constraints synonym