

The Influencing Factors on the Buying Behaviour in the Software Market

The case of desktop Operating System and Office Suite choices considering Proprietary and Open Source Software alternatives

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Background

- In the desktop software market the main software categories, Operating System and Office Suite, are dominated by a strong Proprietary Software incumbent, Microsoft. Microsoft Windows has more than 90% of market share (Netmarketshare 2011), Microsoft Office Suite has near 90% of market share (Gartner 2011)
- Considering the research about the influencing factors on the buying behaviour in the software market, how can these factors influence the future software choices between the incumbent against alternative Open Source software (OSS) or Proprietary Software (PS)?

Research Hypothesis

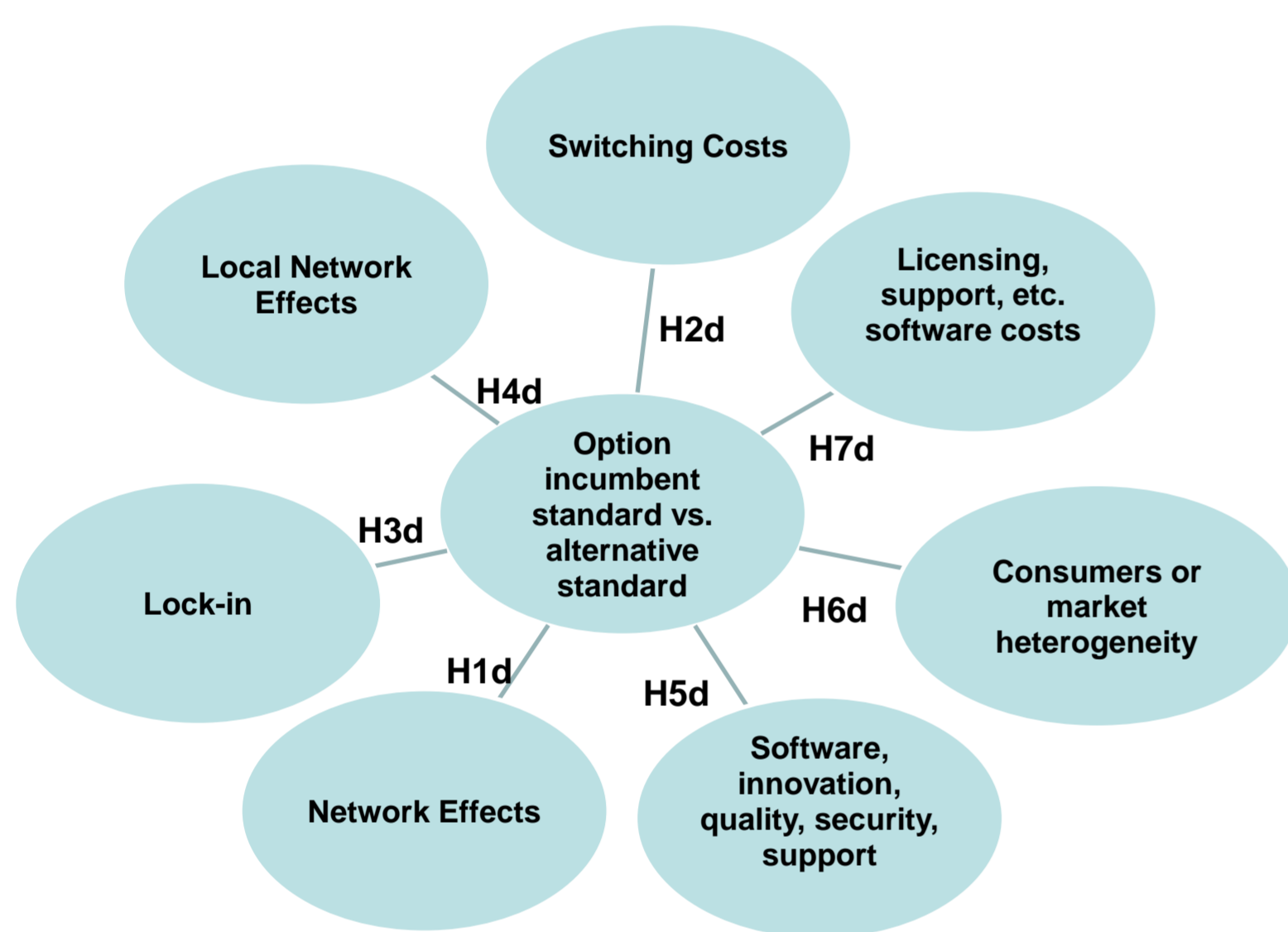


Figure 1. Software buying decision model

Main Results

Methodology

- Research question: "Which factors have influence on the buying process decision of desktop Operating Systems and Office Suites considering Open Source and Proprietary software alternatives and how they influence these choices?"
- Data collected from online questionnaire that was sent to Small and Medium companies and Large Companies in Portugal.
- Closed questions: company profile and Operating System or Office Suite options in existent desktops and new desktops. Other questions (some with sub-questions): 5-point Likert scale.
- Constructs building: Cronbach-alpha test and factor analysis. Hypothesis test: non-parametric Wilcoxon Signed Rank test or parametric t-test (5% significance) choice after normality Kolgorov-Smirnov test.
- Second research stage: Logistic regressions of Operating System and Office Suite choice models (not detailed in poster).

Nr.	questions Aspects covered in the 5-point Likert scale questions
2	Applications and file compatibilities with business partners
3	Legacy files or applications still in use
1	Factors that influence software choices (18 factors)
1	Knowledge of main software suppliers (12 PS and OSS brands)
6	Innovation, quality and security perception of different brands (software) in the market (Operating Systems-7; Office Suites-8)
2	Innovation, quality and security perception of PS vs. OSS
1	Costs considering PS and OSS
1	Technical support availability for PS and OSS
5	Easiness of switch Operating System and/or Office Suite switch and influencing factors on that easiness (OS-8 factors;Office- 6)

Table 2. Questionnaire 5-point Likert scale questions

Main Conclusions

- Hypothesis regarding influence factors in the desktop Operating System and Office Suite choices, confirmed.
- Incumbent software with advantage against Open Source or Proprietary software alternatives in five of the seven influencing factors, making the switch less likely.
- Search for software alternatives more likely in Office Suite than in Operating System.
- Small and Medium companies more likely to choose the incumbent software.

Further Research

Research considering:

- temporal evolution of software choice's influencing factors;
- other consumer segments;
- other software categories (servers, tablet and smartphone operating systems, browsers, social networks, etc.)
- new market trends like Cloud Computing or Software-as-a-Service.
- other research methodologies like Structural Equations or Agent-Base Modeling

Hypothesis	Literature Review	Consumer Choice	Research Results	
			Variables and Constructs hypothesis test with 5% significance	OS OFF S
H1 Network Effects	The higher the network effects in the market (Katz and Shapiro 1985), (Economides 1996), ...	Lower probability that the consumer will choose the alternative standard against the incumbent standard	. Applications available in market and possibility of use same application as business partners (Operating System). . File compatibility with partners (Office Suite).	I I
H2 Switching costs	The higher the switching costs in the market (Farrell and Saloner 1985, 1986), (Langlois and Robertson 1992), (Chuang 2011), Exist, being lower for the Office Suite switch.	I I
H3 Lock-in	The higher the lock-in weak and strong (Farrell and Saloner 1985, 1986), (David 1985), (Liebowitz and Margolis 1994, 1995) (Liebowitz 2000), (Barnes, Gartland and Stack 2004), ...		Weak lock-in caused by path dependence (same application updated through the years) and influencing switching costs through: . Computer, peripherals and applications owned (Operating System) . Knowledge to install, uninstall, and work with software (Operating System and Office Suite) . Incumbent files owned (Office Suite).	I I
H4 Local network effects	The higher the local network effect in the market (Dalle 1997), (Birke and Swann 2010), Only through Information Systems staff, inside or outside the company. While the advice could go one way or another, it favour OSS (IS staff means less technical support and knowledge lock-in).	A A
H5 Software brand image, innovation, quality, security, support	The better the perception regarding innovation, quality, security, support, etc. of the incumbent standard (Liebowitz and Margolis 1996), (Clark and Sangit 1999), ...		Brand global perception considering relevant actual and potential future needs. Comparison between OSS and PS: . In Operating Systems and Office Suites: there is no statistically significant difference between them. . Global perception (image, quality, security): there is no statistically significant difference between them. . Technical support availability: Proprietary Software has statistically significant advantage.	I I
H6 Heterogeneity degree	The higher the heterogeneity of the consumers (the lesser the network effect) (Dalle 1997), (Dalle and Jullien 2002), (Bonaccorsi and Rossi 2003), (Bessen 2005), ...	Higher probability that the consumer will choose the alternative standard against the incumbent standard	. Low software heterogeneity: Microsoft Windows and Microsoft Office dominating the software environment.	I I
H7 Software global costs	The lesser associated costs to adoption of the alternative standard (licensing, support, training, compatibility, etc.) (Bonaccorsi and Rossi 2003), (Liebowitz and Margolis 1994, 1995), (Mustonen 2003), (Lin 2004), Software global costs relevant in choice; OSS perceived as cheaper than PS	A A

Table 1. Incumbent versus alternatives choice influencing factors [Operating System (OS) and Office Suite (OFFS)]
Advantage for: I – Incumbent Proprietary Software; A – Alternative Proprietary or Open Source Software

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