Results of Parsimonious Model:

|  |  |  |  |
| --- | --- | --- | --- |
| Criterion | DIC | pD | LL |
| Proposed Model | 946,665E+6 | 455,707E+6 | -245,472E+6 |
| Interaction of Versions, (OL\*STV), (STV\*STavg) | 946,508E+6 | 455,557E+6 | -245,475E+6 |
| No Version Carryover | 946,355E+6 | 455,554E+6 | -245,400E+6 |

* 1. **Diffusion of Platform**

In order to model the diffusion of the platform, we adopt the method proposed by Horskey and Simon (1983) to incorporate platform competition. Let m(t) denote total adopters of the platform at time t, M the market potential, p and q the external and internal parameters, X(t) vector of competitor’s market share. Thus the diffusion of the platform has the following form:

 (1)

where  is the coefficient of competition. Note that at each time, we assume competition affects the external factor of adoption. In our empirical case we include chrome and internet explorer as competitors of Firefox, based on press evidences on close competition between these three browsers.

In addition we explain external forces of the market  in bass model in terms of unobservable component , and the impact of platform management, add-on Mozilla organization (AMO) performance (size of the queue of nominations, and number of contributions of AMO), as following:



where  is a vector that includes size of the queue of nomination and number of contributions of AMO in responding to nominations, and  is the parameter to estimate.

In addition, we also allow the real market size of the platform (Mozilla Firefox) to increase with the number of add-ons that are created on the platform. In other word with any new add-on that is created the platform can expand its coverage of consumer’s need space, so the its actual market size increases, as following:



where  is the original market size,  the accumulative number of add-ons until time t, and is parameter that captures effect of one add-on in extension of market size of the platform.

We assumed that the total number of adopters is observed with error, so we adopt state space approach and discretize the diffusion model of platform as follows:

, where  (2)

 where  (3)

where error term  and  are assume to have normal distribution with mean zero and variance and respectively.  is observed total number of adopters of platform, and , ,  ,  ,  and  are parameters to estimate.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Platform Result |  |  |  |  |
|  | mean | ste | 2.5% | 97.5% |
| Market Size | 0.68371 | 0.00000 | 0.68371 | 0.68371 |
| unobserved external market force | 0.00003 | 0.00000 | 0.00003 | 0.00003 |
| unobserved internal market force | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| Add-ons Created | 0.08330 | 0.00000 | 0.08330 | 0.08330 |
| Microsoft Chrome | -0.00011 | 0.00000 | -0.00011 | -0.00011 |
| Microsoft IE | -0.00032 | 0.00000 | -0.00032 | -0.00032 |
| Total # AMO contribution | 0.00001 | 0.00000 | 0.00001 | 0.00001 |
| Total # Nom. in AMO queue | -0.00003 | 0.00000 | -0.00003 | -0.00003 |
| Variance of Observation eq | 0.01264 | 0.00316 | 0.00834 | 0.01838 |
| Variance of state eq | 0.11635 | 0.00735 | 0.10381 | 0.12790 |

* 1. **Diffusion of the complement product**

As mentioned before, we endogenize the market size of supplementary products in modeling their diffusions. Let n(j, t) denote total number of adopters of a supplementary product j at time t, we model the diffusion of supplementary products as follows:

 (4)

where m(t) represents the total number of platform adopters at time t, p(j) and q(j) are the external and internal parameters, and  represents the disadoption rate. To account for churn we adopt the method proposed by Libai et al. (2009) that assumes that those who disadopt does not spread word of mouth for the product. In our model we assume that market size of the supplementary product cannot be greater than the market size of platform. This assumption may be reasonable because in order to use the supplementary product one must have the platform. Moreover, we allow different market size for different add-ons by incorporating  coefficient of market size in our model.

We explain external factor, innovation force, in terms of impact of different generations of digital goods as follows:

 (5)

where  is unobserved innovation force parameter, captures the impact of new version of platform, and the impact of new version of add-on.  is the parameter of platform new version effect, and  the parameter of new add-on version effect.

According to information diffusion and consumer procrastination theory consumer may receive the information about new version of the platform or add-on later in time or decide to install it later. To allow for such a dynamic effect we created  as follows:

 (6)

where is the time of issuance of last version of the product, and is the decay factor. We set  to 0.89 which is the mean of our estimate of the discrete time analog model of Nerlove and Arrow (1962) on our data. We built variable  with the same convention.

We explain internal factor, imitation force, in terms of impact of different generations of digital goods as follows:

 (7)

where  is unobserved imitation force parameter, captures the impact of variance of add-on ratings, the impact of consumers observing daily users count, and  is average of product rating that consumer observes. Average of product rating is shown in the form of number of stars, in discrete form in the page of the add-on, and variance of rating is showed through the frequency of reviewers who previously rate the product at each level (i.e. 1-5 stars).  is the parameter of variance of product ratings effect,  the parameter of observational learning effect,  the parameter the effect of star average.

In order to measure the impact of observational learning, we assumed that not the absolute value, but the relative value of the number of daily users is relevant. As a result, we divide the number of daily users of add-on  by the total number of add-on users of Firefox platform. This assumption may be reasonable because consumers do not just care about the absolute value, but they compare it with the reference to understand it according to prospect theory.

Like platform diffusion, we assumed that the total number of supplementary product adopters is also observed with error, so we adopt state space approach and discretize the diffusion model of supplementary products as follows:

, where  (8)

 where  (9)

where error term  and  are assume to have normal distribution with mean zero and variance and respectively.  is observed total number of adopters of add-on j at time t , and , , , ,  and  are parameters to estimate.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Add-ons |  |  |  |  |  |  |  | |
|  |  |  |  |  | Individual Add-ons | | | |
|  | mean | ste | 2.5% | 97.5% | Pos. Effects | Neg. Effects | | Total addons |
| Relevance | 0.0133 | 0.0018 | 0.0168 | 0.0097 | 52 | 0 | | 52 |
| Unobs. Ex. Frc | 0.0086 | 0.0016 | 0.0118 | 0.0055 | 22 | 7 | | 29 |
| Addon-Vrsn. | 0.0048 | 0.0012 | 0.0071 | 0.0026 | 3 | 3 | | 6 |
| Ffx-Vrsn. | 0.0041 | 0.0010 | 0.0060 | 0.0021 | 4 | 3 | | 7 |
| Unobs. Int. Frc | 0.0055 | 0.0013 | 0.0080 | 0.0030 | 10 | 3 | | 13 |
| Rating-Var. | 0.0118 | 0.0019 | 0.0155 | 0.0082 | 10 | 2 | | 12 |
| Obs. Learning | 0.0052 | 0.0016 | 0.0084 | 0.0021 | 4 | 3 | | 7 |
| Rating-Avg | 0.0021 | 0.0012 | 0.0045 | -0.0003 | 5 | 4 | | 9 |
| Churn | 0.0159 | 0.0020 | 0.0197 | 0.0120 | 52 | 0 | | 52 |
|  | 0.0002 | 0.0000 | 0.0002 | 0.0002 | 52 | 0 | | 52 |
|  | 0.0002 | 0.0000 | 0.0003 | 0.0002 | 52 | 0 | | 52 |

* 1. **Heterogeneity**

The effects of internal and external factors, churn and market size ratio may differ across supplementary products, as for example effect of advertising, need category, and competition in the market of the supplementary goods may differ. Thus, we also acknowledge such potential heterogeneity by linking these supplementary product specific parameters from equation 9 to a set of supplementary product characteristics, such as type of license of the add-on and add-ons business model (meet the developer or donation).

, where  (10)

License description

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| item | BSD | MIT/X11 | Mozilla | GNU | Custom |
| Provides copyright protection | TRUE | TRUE | TRUE | TRUE |  |
| Can be used in commercial applications | TRUE | TRUE | TRUE | TRUE |  |
| Bug fixes / extensions must be released to the public domain | FALSE | FALSE | TRUE | TRUE |  |
| Provides an explicit patent license | FALSE | FALSE | TRUE | FALSE |  |
| Can be used in proprietary (closed source) applications | TRUE | TRUE | TRUE | FALSE |  |
| Is a viral license | FALSE | FALSE | FALSE | TRUE |  |
| Supported by Code-Project | TRUE | TRUE | TRUE | TRUE |  |

Descriptive statistics of licenses and incentives

|  |  |  |
| --- | --- | --- |
| Item | Type | Frequency |
| License | Fully free (MIT/X11,BSD) | 5 |
|  | Restricted (GNU, Custom) | 41 |
|  | Mozilla | 2 |
| Incentive | Contribute | 25 |
|  | Meet Developer | 10 |

Cross-sectional analysis:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | mean | variance | 2.50% | 97.50% |
| Relevance | Intercept | 0.013 | 0.007 | 0.002 | 0.025 |
|  | contribute | 0.009 | 0.016 | -0.019 | 0.035 |
|  | meet developer | -0.003 | 0.020 | -0.036 | 0.031 |
|  | free | -0.004 | 0.034 | -0.061 | 0.051 |
|  | restricted license | 0.005 | 0.027 | -0.039 | 0.048 |
|  | Mozilla license | -0.003 | 0.045 | -0.077 | 0.070 |
| Unobs. Ex. Frc | intercept | 0.013 | 0.007 | 0.002 | 0.024 |
|  | contribute | 0.009 | 0.017 | -0.019 | 0.036 |
|  | meet developer | -0.002 | 0.021 | -0.037 | 0.031 |
|  | free license | -0.004 | 0.034 | -0.059 | 0.052 |
|  | restricted license | 0.005 | 0.026 | -0.038 | 0.049 |
|  | Mozilla license | -0.001 | 0.044 | -0.075 | 0.071 |
| Addon-Vrsn. | intercept | 0.008 | 0.007 | -0.003 | 0.020 |
|  | contribute | -0.002 | 0.016 | -0.029 | 0.025 |
|  | meet developer | 0.007 | 0.021 | -0.027 | 0.041 |
|  | free license | -0.015 | 0.035 | -0.074 | 0.042 |
|  | restricted license | -0.006 | 0.027 | -0.050 | 0.039 |
|  | Mozilla license | 0.005 | 0.046 | -0.069 | 0.080 |
| Ffx-Vrsn. | intercept | 0.005 | 0.007 | -0.007 | 0.017 |
|  | contribute | -0.002 | 0.017 | -0.030 | 0.026 |
|  | meet developer | 0.004 | 0.022 | -0.032 | 0.039 |
|  | free license | -0.010 | 0.035 | -0.068 | 0.049 |
|  | restricted license | -0.003 | 0.028 | -0.048 | 0.043 |
|  | Mozilla license | 0.012 | 0.046 | -0.065 | 0.087 |
| Unobs. Int. Frc | Intercept | 0.013 | 0.007 | 0.002 | 0.025 |
|  | free license | -0.004 | 0.034 | -0.059 | 0.053 |
|  | restricted license | 0.005 | 0.027 | -0.039 | 0.050 |
|  | Mozilla license | -0.002 | 0.046 | -0.078 | 0.075 |
|  | contribute | 0.005 | 0.029 | -0.042 | 0.052 |
|  | meet the developer | -0.002 | 0.020 | -0.035 | 0.032 |
|  | contribution amount | 0.001 | 0.004 | -0.005 | 0.007 |
| Rating-Var. | Intercept | 0.009 | 0.007 | -0.003 | 0.020 |
|  | free license | -0.015 | 0.035 | -0.072 | 0.042 |
|  | restricted license | -0.005 | 0.028 | -0.051 | 0.040 |
|  | Mozilla license | 0.005 | 0.046 | -0.070 | 0.081 |
|  | contribute | -0.002 | 0.028 | -0.049 | 0.046 |
|  | meet the developer | 0.007 | 0.021 | -0.027 | 0.042 |
|  | contribution amount | 0.000 | 0.004 | -0.006 | 0.006 |
| Obs. Learning | Intercept | 0.005 | 0.007 | -0.007 | 0.017 |
|  | free license | -0.011 | 0.036 | -0.070 | 0.047 |
|  | restricted license | -0.004 | 0.028 | -0.050 | 0.042 |
|  | Mozilla license | 0.012 | 0.048 | -0.069 | 0.090 |
|  | contribute | -0.003 | 0.030 | -0.052 | 0.046 |
|  | meet the developer | 0.004 | 0.022 | -0.032 | 0.039 |
|  | contribution amount | 0.000 | 0.004 | -0.006 | 0.006 |
| Rating-Avg | Intercept | 0.004 | 0.007 | -0.008 | 0.016 |
|  | free license | -0.004 | 0.037 | -0.064 | 0.058 |
|  | restricted license | -0.003 | 0.029 | -0.050 | 0.044 |
|  | Mozilla license | -0.009 | 0.048 | -0.087 | 0.069 |
|  | contribute | 0.000 | 0.029 | -0.048 | 0.048 |
|  | meet the developer | 0.000 | 0.021 | -0.035 | 0.035 |
|  | contribution amount | 0.000 | 0.004 | -0.006 | 0.006 |
| Churn | Intercept | 0.013 | 0.007 | 0.002 | 0.025 |
|  | contribute | 0.008 | 0.016 | -0.018 | 0.035 |
|  | meet the developer | -0.003 | 0.020 | -0.036 | 0.031 |
|  | free license | -0.004 | 0.034 | -0.060 | 0.053 |
|  | restricted license | 0.005 | 0.027 | -0.039 | 0.049 |
|  | Mozilla license | -0.003 | 0.045 | -0.077 | 0.073 |
| Variances | eta1 | 0.002 | 0.001 | 0.002 | 0.003 |
|  | eta2 | 0.002 | 0.001 | 0.002 | 0.003 |
|  | eta3 | 0.002 | 0.001 | 0.002 | 0.003 |
|  | eta4 | 0.002 | 0.001 | 0.002 | 0.003 |
|  | eta5 | 0.003 | 0.001 | 0.002 | 0.004 |
|  | eta6 | 0.003 | 0.001 | 0.002 | 0.004 |
|  | eta7 | 0.003 | 0.001 | 0.002 | 0.004 |
|  | eta8 | 0.003 | 0.001 | 0.002 | 0.004 |
|  | eta9 | 0.002 | 0.001 | 0.002 | 0.003 |

Relation between relevance and churn

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Result of regressing relevance on churn | | |  |  |
| R Square | 0.31428 |  |  |  |
| Adjusted R Square | 0.300565 |  |  |  |
|  | mean | ste | 2.50% | 97.50% |
| Intercept | 0.021465 | 0.00228 | 0.016886 | 0.026045 |
| churn | -0.51595 | 0.107779 | -0.73243 | -0.29947 |

|  |  |  |
| --- | --- | --- |
| Dispersion of Churn and Relevance | | |
| Variance of Relevance | 0.000166 |
| Variance of Churn | 0.000195 |

Literature summary of open source from case studies:

* Case Studies of HBR summary about Firefox Context

I read the first one which is published in Journal of Information Technology Teaching cases (2011), Lessons learned from the development and marketing of Mozilla Firefox, and here are my takes:

(1) As you said Firefox has been successful in competing with the default application of Microsoft operating system (IE). It has a fantastic growth rate. Within 100 days it got 10 million users, and 10% of market share from this dominant player.

(2) They emphasize their power in their community and engagement with that community (this community as they say is sel-organized and independent)

(3) They have limited resources, but this community power creates efficiency, cost saving, innovativeness and productivity in their business (I think we are capturing this through discussion about AMO, Add-ons, product reviews, because product reviewers according to terminology of this paper are Bug reporters and massive users, Add-on developers are patch submitters, and AMO is core group)

(4) Licensing is important according to this paper (GNU, GPL that restrict derivatives removing any commercial incentive)

(5) They mentioned that they want sustainable community that must co-evolve with the platform, and we are capturing this through observational learning. (in page 87 of the case they mentioned that they put # of downloads to not only help users, but most importantly to give incentive for developers, through social approval)

(6) Sustainability of this community seems to be very important with them, and to do so they need to provide correct signal for end users as well. They mentioned that most OSS projects are suitable for technical users, but they are successful to create application for mom and pop (non-technocal users), and this means they need to provide enough guidance for those audiances, and both observational learning and product rating is important in that sense

(7) They mentioned important rules they have:

1- "We want it to be small"

2- "Let's not keep too many cooks"

3- "All patches are not created equal"

4- "All users are not created equal"

This all suggests that they have hierarchical structures that they talk about, AMO, Add-on developers and reviwers, and they want to sustain this, and it is possible through a good performance appraisal system, which here is measured in terms of rating, observational learning, and most importantly the relevance factor and churn. I think in this framework churn that we are capturing is very relevant to this sustainability goal and this hierarchical structure that they are seeking.

(8) At page 81 of the case it is mentioned that it is not all about hobbyist participants, as voluntary contributions tends to decrease over time, so the incentive that you mentioned before is very important based on this, and if we find it insignificant, we just rejected their theory.

(9) "Browser war" story was really interesting. I saw that in Bloomberg TV last year. The way Microsoft bit Netscape, but from that ash a phoenix raised and that is why they brand Firefox.

(10) They lack resource for advertising and marketing, and their community is the tool for them, so our discussion about sustainable community through observational learning, rating, churn and relevance is important.

(11) On page 81 it is mentioned that browsers are highly substitutable, so breath of the use and perceived ease of use of the challenger product is important. They are getting this through add-ons. Security functionality and ad-block was one of the important features mentioned in page 82 of the case, and we have ad-block add-on in our study.

(12) Public relation also was their powerful tool, but public relation is two-sided sword, so they wanted to use the power of community for that, and to do so they need churn, relevance, OL, star rating that we are studying. AMO is community coordinator in the terminology of this case study. They said they thank a successful contributor in public, and this creates incentive for those contributors, so our measures can help them to better manage this appraisal process.

(13) In page 87 of the case they mentioned that referral is very important portion of their open source context, and we again re capturing it with observational learning and product rating.

(14) They mentioned that local languages, together with community helped them to reach international market, and we have couple of translation add-ons in our data. In addition this internationalization creates problem of various tastes, and product rating and its variance captures this high variation, and we have it in the model.

(15) Finally they mentioned in page 88 of the case that they wanted to create feeling of ownership through this community, and this allowing add-on development, allowing to write rating, and allowing to be part of AMO is part of this.

* Mozilla : scaling through a community of volunteers
  + Transparency is a key in developing the software, completely different from isolated environment of coders (p4)
  + The goal was to develop stand-alone browser that is great, as they think financial incentive of IE and Netscape does not look for that (Great Browser) => p4
  + Toolbar search that is now using Google generates considerable revenue (first it was directed to Yahoo)
  + Public benefit => they are tax exempt
  + The community sustainablity is closely related to transparency (p6) => in our case it is OL, RT, and churn and relevance data may also help if it is publicized
  + Deep testing is unique aspect of online community => first as the code was complext this was main contribution of the community
  + Testing is usually very costly, as they needed to test the product over various platforms and under different conditions (p7)
  + This various types of users who test the product together with transparency, and no financial incentive created high quality tested product (export of quality assurance)
  + The main challenge for them is organizing community, and they refer to their environment as a "chaordic system" combining aspects of both chaos and order (great environment for innovation)
  + On page 7 their CEO says: you try to get it going in a direction, and you try to make sure it doesn't go too far off track. Then you take the good or bad as it goes and you try to limit the negative and improve the positive. I think you can only get consistently good outcomes in a movement by creating good leaders in that movement all the way around and creating a way to be self-replenishing.
  + [My text:]Ladership is important in their context, and that is why rating and observational learning is important, as they say the society really doesn't like your add-on, so it is not like a dictatorship rejection of an idea by a manager.
  + Mozilla was based on a set of idea, as expressed in its manifesto. Lilly referred to this as the "poetry" that drove the organization -- "keep[ing] the internet open and free by supporting choice, innovation, and opportunity online" Poetry meant that "everyone should hack, everyone should do what they want, everyone should change the web". However pragmatics are related to trademark rights and laws, and that is why this hierarchical structure exists. These two are conflicting but they try to manage their coexistance. (p8)
  + On page 9 of the case: Lilly saw all participants in the effort as "citizens" of the Mozilla community, regardless of whether theya re employees or volunteers. He linkend this citizenthisp to country. => it is referring to this community
  + On page 10: yet some organization was required, so that contributions could be effectively incorporated and woven together and the passionate contributors in this community were prevented from degenerating into disagreements, bickerings, and chaos.
  + They use a bug tracking system, Bugzilla, to report bugs and assign int to people to fix.
  + On the Bugzilla there are strong set of etiquette rules to maintain a cooperative environment which include: "no pointless comments", meaning that people should not post unless they were adding useful new information--"Voting", or agreeing with previous comments, did not add new information to the discussion and thus was not allowed. Another rule was "no personal abuse"-- Bugzilla was to be used to enable anyone to observe and contribute to the development process, and abusive conduct was not helpful or welcome. (p11)
  + They try to not reject participation to maintain the community, so unlike IE and Netscape that had no incentive to allow different languages for every local, they allowed it, and the community crated this different language versions. This lowered their barrier to entry (p12)
  + They key part of their marketing is to allow for people's opinion (WOM), and they state that you must start off with something that people are passionate about. It's surprising that it's piece of software. I've been in other things involved in political activism and things like that, and I never really thought I've seen this kind of enthusiasm about a piece of software, but it's thre. It turns out that when you look at the Web, it's a billion people online all looking through this window that you made, and thy're going to have opinion about it, Dotzler. (p15)
  + On page18 they mention importance of new add-ons indirectly by saying that as the IE's monopoly is removed in EU, then savvy users who want for example social game will step in (we have game as part of our add-ons). They mention that they have different requests, and they need to address these new requirements to spread Firefox.
* The Mozilla Foundation: Launching Firefox 1.0 (A)
  + Browser Wars: The battle that ensued between Microsoft and Netscape for the web browser market became known as the “Browser wars”. Intial version of IE were neither as robust nor as full-featured as Netscape Navigator and hence did not significantly impact Netscape’s market share. However, with a series of maneuvers that were later found to be unlawful, Microsoft took advantage of their monopoly position and distributed IE aggressively through channel partnership and by “bundling” IE with the windows operating system.
  + In the U.S alone, the number of PCs shipped grew 21 times between 1995 and 2000, and as a result, IE’s market share had increased from less than 10% in 1996 to more than 50% by the end of 1998.
  + Netscape management believed that Netscape could compete with Microsoft’s “bundled browser” by giving its browser source code away under an open source license. The browser source code was licensed under the Netscape Publice License (NPL), which allowed Netscape to release proprietary software with community contributions.
  + To meet the definitions of an open source license, this aspect of the license was later modified and became the Mozilla Public License (MPL)
  + Creating an open source project from the original proprietary source was complex. A good deal of information exchange had to be made public so that individual contributors working on the code around the world could follow software development. Mozilla developers also tried to make the source code more modular to reduce the learning curve for new contributors.
  + Thus, internal (between engineers and product teams) and external communication (between engineering and community) required new guidelines. To work in an open source environment, engineers had to relinquish ownership of the browser from both product development and product management perspective. For example, the engineers who created the original browser had to grapple with accepting changes to their original work from outsider. Finally, the open source development model encouraged meritocracy. Under-performing developers who may have been shielded by a proprietary development model would not be more exposed.
  + Although Netscape developers remained responsible for the core of the project, the project quickly grew into a community of developers and testers outside the boundaries of Netscape.
  + Steve case, CEO of AOL at the time, supported the Mozilla project in his personal response to Jamie: “ I did want to let you know personally that we’re very supportive of Mozilla.org. On our press call yesterday, Mike Homer said Mozilla is larger than Netscape. I know it’s larger than AOL, too.”
  + Product DEsing: The firefox developers embraced a cohesive design philosopy built upon three pillars that set it apart from other open source projects: usability, platform independence, and security.
  + To improve the user experience, Mozilla developers disabled or removed unnecessary features from the default installation. This relentless pursuit of usability and simplicity resulted in smaller download of 4.8 MB for the Firefox browser on Microsoft Windows XP.
  + Because Firefox was created from Mozilla technology, it was truly cross-latform. Cross platform applications worked on multiple operating systems (Windows, Linux, etc.) with no modifications to the source code.
  + The Firefox browser was designed to be a platform that could enable anyone to extend its functionality. Within days of its first release, developers around the world created innovative and interesting features that could be easily added to extend the browser’s basic functionality.
  + With limited marketing resources, the Firefox community relied on innovative grassroots marketing campaigns to educate users.
  + Monetizing Search in Firefox: There was evidence that Firefox users were more likely to search than browse the internet. Consequently, the foundation realized that the search box could be very valuable to Internet companies and a possible source of revenue to enhance the resources of the Foundation.
  + Resources were very much needed to not only develop and promote Firefox, but to improve the sustainability of the Foundation. The startup funds and subsequent modest donations were strapped as Baker and her team directed their energies to manage a new set of consitituents.
  + It Ensuring the sustainability of the project and the foundation is core to the mission.
  + It was important that “the artifacts we produce-applications, platform software records of decisions, organizational processes, business models—will remain for others to build upon”
  + If working with ocorporate partners could help further the foundation’s sustainability without compromising the other parts of its mission, there was no reason not to do it.
  + There are people who are learning to use the web now from the first time. And we want to set their expectations very high. We want them to be offended and disappointed and angry when they are not in control of their web experiment. (p9)
  + Any relationship with a corporate partner had to balance the foundation’s commitment to its users with their desire to acquire resources.
  + Potential Commercial partners: Google, Yahoo!, Amazon, eBay, Expedia, BBC, Merriam-Wester, Wikipedia
  + Appendix A: Open Source Software Development” The term “open source” was coined at a strategy session held on February 3” 1996 after the MoziUa project was announced.” Those present included Todd Anderson, Chris Peterson 4 the Foresight Instithte, John maddog’ Hall and Larry Augustin (both of Linux International), Sam Ockman (of the Silicon Valley Linux User’s Croup), and Eric Raymond (open source developer and advocate). The objective of this meeting was to create a way to market “free software” to business interests.’ Open source projects are typically founded by a single person trying to solve a particular problem (e.g. Linus and the Linux kernel). Sometimes, companies release the source code to their proprietary products effectively “open sourcing” their product. The solution is then freely distributed, mostly via the Internet, to the public for consumption and modification. 1f the project solves a significant problem faced by a large number of people, it is rapidly adopted and the original author is generally appointed by the users of the software as the default project leader and gatekeeper for all further modifications to the code. The community of adopters also uses and tests the future releases of the code. The most popular open source projects have thousands of developers working on the code from all corners of the globe. They contribute bug reports and fixes to a centralized bug tracking database and answer questions on public project mailing lists. Mo€t community-managed open source projects do not have formal assignments of tasks and community members choose what to work on. Project planning is tvpicailv keDt to a minimum. Every piece of code is reviewed by several developers, especially as the project grows in scope, to ensure that all functionality is preserved. Every project has its own governance model, but often a project owner will make the final call on technical decisions as he/she deems fit. Transparency in the development model and the availability of source code are argued to improve code quality. The more people who can see and use the code in a variety of computing environments, the more likely it is that each user will be uniquely able to detect problems that others might not experience.” With a large community of contributors, an open source project with a small core of developers can achieve a level of testing that would be otherwise prohibitive to fund in a firm. In an open source project, there is traditionally no product management, product marketing or business development functions because most projects don’t sell. Commercial third party providers (e.g. Red Hat, Novell) often repackage, test, sell and market software produced by open source projects. As open source projects have matured, their software has been increasingly adopted b businesses, inspiring ?naztÇ community based projects to adapt formal organizational structures. Open source business models have also flourished with an increase in venture capital to experiment with open source business models (Exhibit 6).
* People Operations at Mozilla Corporation: Scaling a Peer-to-Peer Global Community
  + Our biggest challenges is to have an organization that relies on the behaviors and interactions of millions of volunteers for its identity. Gary KOVACS, CEO, MOZILLA CORPORATION. (p1)
  + Levels of Mozilla Contributors: Core contributor, active contributor, casual contributor, supporter, and user. (p19-20)
    - A core contributor is someone who has a leadership position in one or more Mozilla project areas
    - Active contributor: An active contributor is someone who has volunteered substantial time to a Mozilla activity that involves interactions with others within the last 12 month.
    - Casual contributor: A casual contributor is someone who has volunteered small amount of time in an activity that doesn’t necessarily involve interactions with other community members. (e.g. Test pilot study)
    - Supporter: A supporter is someone who has shown an interest in Mozilla without having made a substantial contribution back to the community yet.
    - User: A user is someone who uses Mozilla products, but may not be aware of Mozilla’s mission or that there are volunteer opportunities they could get involved with.
  + The intent of Mozilla project was to create a global open community of internet programmers to fuel innovation in the browser market.
  + Humanity-Based Philosopy: Cohen emphasized: “ I wanted to make sure that we had humanity in the workplace, especially in a technology organization where people might not be as socially comfortable interacting face-to-face. I wanted to help create an organization that honored the humanity of each person and the potential that we each have. And to create an environment where people feel like they are championed to bring their best full self to the organization.
  + The State of Mozilla: Mozilla was unlike many other organizations because of its open source environment and its commitment to open community participation.
  + Here at Mozilla, our talent base is a diverse collection of paid staff and volunteers contributing towards a common objective. (p4)
  + Initially, Mozilla employees were apprehensive to talk to Cohen and Mihca Degele Cohen’s first people team hire, but gradually, they began to respond. Cohen said: “As trained coaches, our beliefs were that they themselves actually had the ansers. We asked powerful questions, guided them, and let them find their way.” Degele added: “They began seeing us not as scary HR or the police, but people that they could come ask for help.”
  + The goal was to create a non-threatening way for managers to get to know the people team as a business partner.
  + Onboarding for Contributors: “They told me that perhaps six months after a volunteer had been contributing and wanted to deepen their involvement might be a better time to provide them with onboarding content” said Cohen. “This was an example where we thought we knew what might be helpful, but we discovered we were wrong when we asked community leadership”