

# **Community Building for Open Source Business Applications: The Core-Extensions-Themes Pattern**

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**Abstract** Open source business applications will require community contributions from business experts with relatively modest technical skills. This position paper briefly examines how active communities have developed around open source platforms that separate core programming code from functional add-ons and user interface add-ons, and how this separation encourages the sharing of specialized business application knowledge. My interest is in finding community and project structures that accelerate the development of open source applications for business.

## **Open Source Business Applications are a Challenge**

Open source software has its roots in developers writing software for their own needs, or programmers “scratching their own itch” to use Raymond’s phrase [2]. Developers are less likely to have expert knowledge of business needs, making open source development for business applications a challenge [4]. Developing effective user interfaces for business applications can be a challenge for similar reasons [5].

Open source business applications will require significant community contributions from business experts that have relatively modest technical skills compared to traditional developers. This position paper briefly examines one pattern of project and community structuring that has emerged in open source projects. These open source projects separate core programming code from functional add-ons, and user interface add-ons. This strategy encourages open source business applications to become more like a platform, where the core functionality can be tailored with specific add-ons that fit the needs of a particular ‘vertical’ application. The question for this research is whether separating the core from add-ons encourages the sharing of specialized application knowledge by business experts who would not otherwise have the technical skills to contribute to an open source project.

## **The Core-Extensions-Themes Pattern**

We define this common strategy of separating open source development and community activity into a core and add-ons as the Core-Extensions-Themes pattern. Extensions are community-contributed code extensions, modules, or plugins that provide additional functionality. Themes are community-contributed files that define the look and feel of the application, sometimes also known as styles or skins.

Extensions vary from adding single features (e.g., adding the ability to vote on content items) to adding substantial new functionality (e.g., adding a shopping cart and e-commerce capability). Themes might only change the colors or graphics used by an application, but more elaborate themes can provide multi-page layouts designed for specific application domains such as online magazines, video sharing, or project management. If the open source platform allows code in the theme files, it can be difficult to tell the difference between an extension and a particularly elaborate theme.

How does the Core-Extensions-Themes pattern help share business knowledge? It might lower the technical barrier to community participation. The people with business knowledge are more likely to be able to contribute a small piece of independent extension code than to make a substantial contribution to the core. The technical barrier to contributing theme files might be even lower. The Core-Extensions-Theme pattern might help expand traditional user roles in open source beyond the usual bug reporting and feature requests [2]. On the deployment side, the availability of a pool of community extensions and themes might lower the technical barriers to users configuring and customizing applications for their own specific business needs.

## **Community Contributions to Open Source Business Platforms**

Table 1 presents some preliminary data on the Core-Extensions-Theme pattern in a selection of open source projects that have direct business uses. This data is tentative, so please only use it as a tool for generating interesting questions rather than treating it as fact. Open source projects were included on our list if they were recognized as award-winning by either the InfoWorld BOSSIE awards, the Packt Publishing CMS awards, or as a SourceForge project of the month. The community contributions were hand-counted on the official project repositories, as of February 2009. If a company was associated with the open source project, their contributions were not counted. Projects that did not differentiate between extensions and themes have blank entries in those columns. Estimates of the core size in terms of thousands of lines of code (kLOC) or Person Years of effort are taken from ohloh.com as of January 2009, and can be particularly unreliable because of the way projects can be spread across multiple repositories.

**Table 1: Community contributions to open source business platforms (extensions and themes), compared to size of the core.**

Platform	Community contributions outside of core			Size of core	
	Total	Extensions	Themes	kLOC	Person Years
WordPress	4863	4245	618	103	25
Joomla	4441			186	47
phpBB	1334	834	500	119	30
MediaWiki	1088	1012	76	1553	444
Drupal	666	486	180	73	18
Moodle	543	454	89	672	183
SugarCRM	523	502	21	109	27
Elgg	343	320	23	189	48
Magento	234	226	8	631	168
Gallery	93	63	30	343	90
Liferay	46			1560	440
dotProject	44	40	4	284	74
Concrete5	29	9	20	n/a	n/a
vtiger	28			637	172
OpenBravo ERP	12			5887	1790
Alfresco	0			2861	828
Compiere	0			501	133
Intalio	0			n/a	n/a
Pentaho	0			1699	479
Jasper Reports	0			248	63
OrangeHRM	0			188	47
MindTouch Deki	0			248	64
Sahana	0			305	79

WordPress and Joomla stand out as two communities that have been particularly successful in promoting community extension and theme contributions, though we would suggest that any project with more than 100 extensions is a serious example of the Core-Extension-Theme pattern. The strategy of combining a smaller core with a large body of community contributions can be compared with the strategy of an OpenBravo or Alfresco to develop a large core code base with little or no community contribution. Given that many extensions are built to integrate different open source platforms, it should be interesting to watch the contrast between large, monolithic open source business software, and business applications that tie together multiple smaller platform into a coherent whole.

## Encouraging Open Source Business Applications

My interest in this research is to find ways of accelerating the development of open source business applications. In my view, open source business applications are a promising new way to share and reuse not just software, but business knowledge. Not having to reinvent standard ways of doing business in every organization offers tremendous productivity gains, of course, but more importantly helps to level the playing field for competition and innovation. In a strange way, opening up business know-how to peer review, and being able to build on the work of others, could be considered as the real 'management science'.

We are still a long way from this grand vision. It is still unclear whether open source communities are able to produce direct business applications that will have as much impact as open source's contributions to IT infrastructure. Traditionally, enterprise applications are seen as the most difficult challenge for open source software.

In the near term, we will investigate community contributions outside of the core. Who is making these contributions, and why? Does the Core-Extensions-Theme pattern broaden the pool of contributors with business knowledge? How many of these contributions directly tie to a specific business application? Which business applications are most common, and which are missing?

We would also like to better understand community development for open source business applications. Do business applications require different community development strategies than open source for infrastructure? Does the Core-Extensions-Theme pattern help? How important are extension and theme contributions versus other ways that business experts can contribute, such as through documentation or customized distributions?

Armed with a better knowledge of community contributions and contributors, we will also be investigating the deployment side. Who is customizing open business platforms with extensions and themes, and deploying them for specific business applications? What kinds of skill does it take? [1] What kind of larger ecosystem is developing around these communities? Given that the increasing power of platforms has been identified as one of the key business IT trends [3], what kind of fundamental changes might an opening of these platforms bring?

## References

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