White Paper

A Box Versus a Bicycle: The Advantages of an Off-the-Shelf CMS over a Custom-Built Solution

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EXECUTIVE SUMMARY

Choosing the proper content management system (CMS) for a website or intranet is crucial for meeting strategic business goals. Leaving aside the product functionality, organizations should pay extreme attention to other aspects of the project's lifecycle, which directly influence the success of implementation. Should they give preference to ready-made, off-the -shelf software, develop a home-brew platform, or apply for a custom CMS offered by a selected provider?

It turns out that an off-the-shelf CMS is preferable for the majority of im-plementations, delivering better value in cost and functionality. The other options hold clear advantages only in highly specific instances that require the development of unique features and integration with non-standard third-party solutions.

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INTRODUCTION

Creating a website or intranet portal for social collaboration always begins with the choice of platform.

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A content management system, by definition, has a software engine inside which facilitates interoperability between users and content.

Clearly, the choice of this «engine» determines much of the fate of the project: its success, cost and development time. By choosing a platform which best fits the specific needs of your organization, you can avoid many problems which would otherwise only show up in the latter stages of the project.

From the most general perspective, when choosing a platform for the web site or intranet there are two alternatives:

- A custom-built system created specifically for the individual project or for customers of a particular web design studio or service provider. Such software is created and maintained by individual developers who do not distribute the system to or through third parties, but rather create projects based on it for their own customers exclusively. The number of sites deployed on a typical customized system is severely limited (possibly only one, and no more than a few hundred projects).

- An off-the-shelf system. Here, an engine is created by a developer (or community) and designed to implement typical web projects. This option provides a wide range of ready-made opportunities, covering the most popular functions and features. The number of projects deployed on such systems can reach into the millions.

This document, intended for customers of websites and intranet portals, compares these two approaches. Information will be presented in a point-counterpoint manner, with each section containing an argument in favor of custom-built systems, which is then analyzed in terms of practical application and pitfalls in real business. The final part of the material will present findings and include a description of a prototype project for which the use of a customized system is ideal, as well as a comparison table of advantages and disadvantages of off-the-shelf systems.

This material is valuable for organizations of all sizes in the process of selecting a content management system. The overview of the market and the arguments herein will undoubtedly help in the making of more informed decisions and in minimizing risks associated with the introduction of an online presence or intranet portal.

KEY FINDINGS

- Proper selection of a platform for a web project is an important task, on which the success of the project greatly depends. The specifics of the task determine which alternative may prove to be preferable. However, for the vast majority of implementations, the off-the-shelf alternative proves to be superior.

- Off-the-shelf systems provide the customer with ready-to-go functionality sufficient to implement the vast majority of projects and tasks facing modern organizations. Custom-built systems written from scratch and do not have functional limitations, but neither do they have a set of tools ready to be used.

- Unlike the case of off-the-shelf products, clients of custom-built systems are forced to assume the risks associated with developing these systems. These risks are quite substantial - both financially and in terms of successful implementation.

- In opting for a custom-built system, an organization may become overly dependent on the people who create the system, be they in-house developers or third-party service providers. Changing contractors or changing the product to meet new IT standards can be difficult, expensive, and sometimes even impossible. From the perspective of a web development company, focusing on the development of their own platform also brings additional risks associated with the implementation of non-core business tasks and the outflow of customers to mass consumer platforms.

- The cost of the license of an off-the-shelf product rarely exceeds 25% of the total cost of ownership (TCO) of the project. TCO depends substantially more on the cost of additional development, training, installation, and content population. As a result, TCO for projects using custom-built systems is usually higher than projects based on off-the-shelf-products.

- The security level of off-the shelf products is known, while the security of a custom-built development is almost impossible to estimate, thus creating a gap of unknown size in assessing security risks.

- In general, the use of custom-built system is justified only in rare cases where the project imposes unique and unusual requirements of functionality, interface, or performance.

ARGUMENT #1: ## THERE IS NO PROBLEM OUR DEVELPERS CANNOT SOLVE

The following argument is often made in favor of a custom-built system: «Why should we use a ready-made content management system? Our developers can write an excellent platform for our exact requirements from scratch».

This message often meets with strong support, especially from the developers who will be responsible. Such confidence is laudable, but does it coincide with the business interests of the organization? Might this position have pitfalls that could derail the whole project? Are these good intentions the kind which paves the road to hell?

Developers are very much like artists - they are creative and want to explore the limits of their abilities. Nearly without exception, they do not like to pore over someone else's code, but this is a skill which often distinguishes a professional from a novice. Another feature of IT professionals - excessive confidence - leads to an underestimation of the emerging challenges and an overly optimistic assessment of their time frame and cost. Are you sure that your programmer is an adequate system architect, designer of interfaces and security specialist?

Developing a content management system for web sites and intranet portals is not a trivial task. Vendors of off-the-shelf systems spend a huge amount of effort to learn customer needs and market trends, as well as to optimize architecture, and perform exhaustive testing. Often, the creation of a truly friendly, productive and safe product is achieved through the collaboration of a highly specialized team or set of teams. To what extent does the small group of developers who are offering to build a system have the patience, expertise, and foresight to produce the product needed?

Moreover, even having a good team of programmers does not guarantee the success of the project. According to the Standish Group, less than a third (32%) of software projects lead to success, and almost a quarter (24%) are shut down and never even put into operation. The remaining 44% of projects are ones that are only partially implemented. They may be significantly late in their fulfillment, require a larger budget, or the objectives may be 'toned down' to goals that are reasonable from a standpoint quite different from the ideals set out when the project originated. Developers may not agree with these figures or may consider the case at hand (in their hands) to be an exception, but the reality, confirmed in international practice, is that the risks are quite high.

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TABLE 1.
Software projects' success rate
Source:
The Standish Group[1], 1994-2009

	1994	1996	1998	2000	2002	2004	2006	2009
Successful	16%	27%	26%	28%	34%	29%	35%	32%
Partially Successful	53%	33%	46%	49%	51%	53%	46%	44%
Failed	31%	40%	28%	23%	15%	18%	19%	24%

In contrast to a custom-built platform, the choice of an off-the-shelf product enables organizations to avoid the risks associated with development completely. In fact, the vendor has already taken these risks. The latter solutions are developed taking best practices into account, and the solution's architec-

[1] The Standish Group International, Inc.,
«CHAOS Summary 2009»
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ture considers international experience and specific features of web applications that are likely to escape the sight of an inexperienced team. Solutions are tested thoroughly and regularly updated. The vendor provides qualified technical support and, in most cases, the availability of source code and a documented API allows customization for the specific task and integration with third-party applications.

Importantly, there are other threats from custom development. In reality, the organization becomes the hostage of its development team. As the authors of the system, only they are able to maintain it and develop it. In the case of an off-the-shelf product, the organization is free to hire technical staff in accordance with the candidate's actual skills and its current business objectives.

ARGUMENT #2: OUR SOLUTION PROVIDER SUPPORTS ONLY THEIR OWN PLATFORM

Web development companies heavily push their custom-built platforms.

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Their position is logical and understandable. On the one hand, they have more experience with their system, and on the other, by introducing a home-made solution, they can tie themselves to their customers for many years.

Does the customer really want this attachment? Would you buy a car which will refuel at only one gas station, and requires some kind of mixture of gasoline, alcohol and hydrogen? In practice, there are cases when the customer is left without support because of changes in staff or other circumstances associated with the solution provider. Customers can never be sure that after some time the provider will not freeze the development of the system, increase the cost unilaterally or change to a technical support system that requires sending a paid SMS for each action in the system. Changing suppliers is as difficult as your platform is non-standard – a very difficult value to assess. In this situation, there is only one way out: an expensive migration to an off-the -shelf system – essentially leaving the customer at square one.

FIGURE 1:
CMS preferences of web development studios
Source:
Tagline Group, 2008 – 2010[2]

[2] CMS rating in Russia by Tagline Group
(in Russian)
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The transition from home-made solutions to their off-the-shelf counterparts has probably been the main observable trend in recent years. With increasing awareness among customers and a fast-maturing market, web development companies have found it unprofitable to maintain their own internal development. Some organizations require products from well-reputed vendors by policy. In the highly competitive environment, even the largest web developers are forced to use off-the-shelf products, despite the fact that it is more profitable to get customers 'on the needle' of their own product.

When choosing an off-the-shelf product, the situation is dramatically different. For example, along with the distribution of Bitrix Site Manager or Bitrix Intranet, an organization receives a guarantee of further development of the system, the ability to change service providers from an extensive network of certified partners, and the constant presence of qualified vendor-based technical support and community assistance.

> Off-the-shelf intranet demonstrated 29% lower five-year TCO, 38% lower deployment labor costs, 78% faster add-on applications development and 45% faster time-to-market compared with custom-built solutions.
>
> *IDC, An Evaluation of Build Versus Buy Portal Solutions*

We cannot ignore the apparent preference of home-made systems for web development companies themselves. Undoubtedly, the «binding» nature that this arrangement creates with the customer has certain advantages. But in the long run, this leads to higher prices for projects, broadening the mandatory skill set into non-core activities (to develop the system and provide technical support) and, consequently, a reduction in the quality and time-to-market of major projects.

An off-the-shelf system differs noticeably for its ease of operation and ease of development. There is of course a learning period to be passed through to obtain the necessary programming skills. However, these efforts pay off quickly and provide a rapidly up-trending trajectory in the development of quality projects. As a result, web development companies are able to increase employee productivity and reduce the cost of fulfillment.

Other important arguments for use of off-the-shelf products by web developers are the opportunity for attracting new customers through cross-marketing with the vendor and, of course, increased customer satisfaction. Being satisfied with a selected CMS system, a customer will be inclined to deepen cooperation with the service provider. This provides additional opportunities for up-selling, cross-sales and sales of consulting services. In the final analysis, more business happens.

ARGUMENT #3: A CUSTOM-BUILT SYSTEM
BETTER MEETS SPECIFIC NEEDS

Under ideal conditions, a system written from scratch will have functionality better suited to the requirements of the organization.

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The high degree of theoretical flexibility offered by custom-built systems only adds inconvenience in both initial deployment and further development, since it entails starting from zero on each feature to be added.

Nearly every modern organization's requirements fit off-the-shelf products' functionality, and these products themselves provide acceptable flexibility, integration opportunities with third-party applications and customization to meet specific requirements. In fact, this progression is something that many industries have passed through. For example, hand-sewn clothing has been largely superseded by mass production, as has the production of individually designed cars by the serial assembly of standard models. We can still have suits fitted to our exact size and pimp our rides to the extent that we find it desirable. However, the need for these goods comprises an extremely small percentage of the market. Further, these specialized instances are not a choice made for business efficiency, but rather for prestige.

FIGURE 2:
Streamlined video players are now available in most CMSs[3]

With websites and intranet portals, the situation is analogous. A truly unique implementation that requires a special platform is a rarity. Moreover, the proportion of such implementations has been steadily declining. The reason is simple - the increasing power given to modern products allows the implementation of more and more advanced functions and the solving of more complex problems[4]. And even if a specific feature is not available - it can always be developed without the need to contact the vendor. The customer has, at his disposal, the source code of the system, a well-documented API, a large number of certified partners and an active community of developers.

[3] CMS rating in Russia by Tagline Group (in Russian)
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[4] For example, Bitrix Site Manager contains 28 specialized modules with very wide functionality
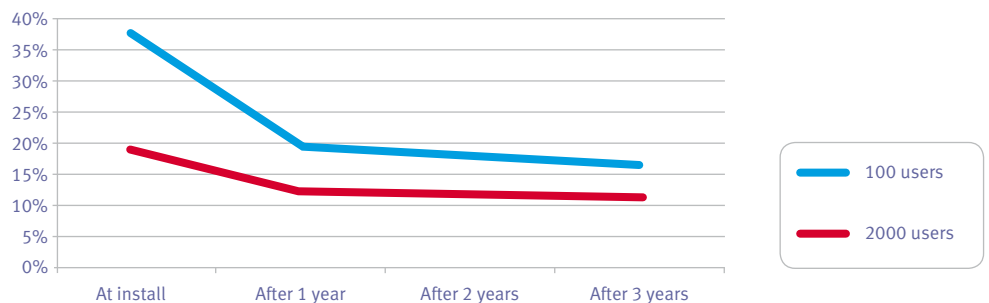*Read more*

Thus, a project created «from scratch» is justified only in rare cases where the project imposes highly non-standard requirements in the functionality, interface, or performance of the system. If an organization makes that choice, it should be prepared for difficulties at all stages of creating a platform from development to support and scaling.

ARGUMENT #4:   ## CUSTOM-BUILT SYSTEM IS CHEAPER

When submitted by IT professionals, this argument is often convincing to companies and their decision-makers.

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FIGURE 3.
Software costs[5] in Bitrix® Intranet TCO.
Source:
Bitrix TCO/ROI Calculator, 2010

The message is simple: using their system is cheaper because they do not have to pay for a license, and there is always refinement and customization work to do in any case.

Indeed, the introduction of an off-the-shelf product mandates customers to pay a license cost and technical support, while developing a custom system does not require such investments. However, experience shows that software costs represent only a small part of TCO (Total Cost of Ownership) of a project. In its recent study, Bitrix found that the proportion of expenditures on software in a standard implementation of intranet projects does not exceed 20% in a three-year time horizon (see Fig. 3). As the scale of the project increases, the share of these expenses is reduced and can end up being less than 10% of the total cost of ownership.

In other words, the license costs are only a small part of the costs of implementation. The total cost of the project depends to a greater extent on the cost of additional customization and populating the system with data. For custom-built systems, these items are much more costly than in ready-made solutions because the functionality and scalability of these products are strictly limited. Additionally, we should not forget about the risks that arise in developing and supporting of a unique customized platform.

[5] License cost, tech support and updates. For more details use the online TCO/ROI calculator
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Specifically, these risks can include significant investment to port the system to a new platform if an organization decides to change corporate standard such as its operating system or database. For many off-the-shelf products, cross-platform support is immediately available out of the box[6]. Another example is the creation of new functional modules - the cost of acquisition for which is an order of magnitude less for off-the-shelf systems.

[6] For example, Bitrix Site Manager supports Windows and Linux, as well as MySQL, MS SQL and Oracle databases.
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[7] IDC white paper «An Evaluation of Build Versus Buy for Portal Solutions»,
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Conclusively, an IDC study[7] shows that TCO figures for enterprise-level custom-made systems tend to be about 29% higher than high-end corporate solutions. For content management systems acquired by small and medium business, the gap is likely to be even greater. Certainly not a finding in favor of custom-built systems.

ARGUMENT #5: A CUSTOM-BUILT SYSTEM IS MORE SECURE

This common myth requires a detailed explanation. From an analytical point of view, the security of any system can be divided into two parts - theoretical and probabilistic.

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Theoretical security characterizes the quality of the system's design, the 'density' of existing vulnerabilities and their criticality. Probabilistic security is a function of the popularity of the system and reflects the likelihood that the system will be compromised.

In some cases, custom-built systems can actually be more secure than the off-the-shelf solutions because of the probabilistic component. Naturally, it's unlikely for a hacker to spend time tracing the weaknesses of a unique system. Theoretical security, however, will always favor off-the-shelf systems, since vendors normally develop their products in accordance with a security development lifecycle and have integrated security modules. It is not reasonable to expect a non-specialized developer to compete against the security development team of an off-the-shelf product's vendor.

The main difficulty with any custom system, simply stated, is that no one really knows the level of protection which it provides. It could, in some cases, be quite high. However, a more common situation is a system which could be broken by a second year university student. Not knowing the real level of security, one cannot estimate the security flaws or the potential damage that they can cause.

In conclusion, it is conceivable to choose a custom-built solution on the basis of security if an organization is 100% confident in the competence of the developer and you are not satisfied with the alternatives offered by off-the-shelf solutions.

SUMMARY: A SIDE-BY-SIDE COMPARISON OF CUSTOM-BUILT AND OFF-THE-SHELF CMS

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Comparison category	Custom-built CMS	Off-the-shelf CMS
Development Risks	Creating a content management system for a website or portal from scratch involves many risks at the development stage. There is a high probability of project failure, budget and implementation time increases, or only partial achievement of the desired functionality.	Development risks are taken on by the vendor, which guarantees future development and support for the product. Before implementation, a trial version allows the customer to get a real feel for its functions&features, integration flexibility and true ownership.
Support Risks	Choosing a custom-built system, an organization makes itself dependent on either internal or external developer. Changing service providers or internal IT standards becomes expensive or impossible.	An off-the-shelf product vendor has a network of certified resellers and partners. Changing service providers is not only possible without changing system, but the competitive atmosphere among the vendor's resellers also creates advantages for the customer.
Total Cost of Ownership	TCO of a custom-built system is very difficult to measure beforehand because of the development and implementation risks. Nonetheless, a large amount of development work will almost always push the cost above the TCO of an off-the-shelf product.	The cost of a project based on an off-the-shelf product is as transparent and predictable as possible. Expenses for the platform itself (license plus support) are comparatively small, usually coming in at 20 to 25% of the total cost of ownership.
Functionality	A custom-built system can be made to do nearly anything. However, every feature, function, and module comes with additional risk, time and expense.	Off-the-shelf systems cover the needs of a wide range of customers and collect know-how from a large number of installations. Adding a custom functionality is possible, so long as the solution comes with the source code and open API.
Integration with corporate IT infrastructure and third-party applications	Custom-built systems can be built to allow extremely tight integration with legacy applications.	An off-the-shelf product includes connectors, an API, and source code for interaction with the corporate IT environment.

Comparison category	Custom-built CMS	Off-the-shelf CMS
Security	In the vast majority of cases, security is unpredictable.	The security characteristics of an off-the-shelf product can be investigated before purchase, certifications and other documentation is usually available from the vendor. Normally, vendor issues timely free security updates and patches.
Business opportunities from a web developer's perspective	Using a home-made system allows a service provider to lock customers into their product for the long term. At the same time, a number of risks must be taken on that are not core activities (e.g. security) essentially competing with off-the-shelf solution vendors.	Using an off-the-shelf product allows a web development company to focus on the areas in which it is most competitive and solve typical problems quickly without having to spend resources on development. Furthermore, joint marketing with vendors replaces competition with them.

CONCLUSION:

WHEN DOES IT PAY OFF TO REINVENT THE WHEEL?

Off-the-shelf software ideally meets requirements of the vast majority of websites and intranets

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The above theses show that for the vast majority of websites and intranets, it is wiser to use an off-the-shelf platform. Nevertheless, there are occasions when using a custom-made system is still warranted. To understand whether your case is among their number, we have prepared a quick test. Carefully consider each of the statements below and count the number, which apply to your organization.

- My web project involves a narrow range of functionality.
- The functionality which I need is highly specific
- I am confident in the expertise of the people who will create a custom-built platform
- I am sure that my solution provider will not exploit his position as the system developer for excessive profit
- I am confident that I will receive documentation for the custom-built system
- I'll be able to change service providers and continue to support the platform if necessary
- The project will need minimal, if any, additional modification or new features over the long term
- There are no plans to migrate to new IT standards over the lifetime of this project
- Other information systems and applications will not need to be integrated into this project over its lifetime
- A high level of security is not critical for this project
- The project cost is not critical
- Timeframe of the project is not critical

So, if at least eight of these twelve statements are applicable to your situation, it probably does make sense to consider a custom-built solution that will justify the mentioned inconveniences and disadvantages.

Otherwise, we suggest that you use the contact information below and get in touch with a Bitrix partner who can put together an industry leading[8] off-the-shelf solution and develop a cost-effective website or intranet-based collaboration solution meeting your specific business requirements.

▶   [8]   W3Techs, an independent analyst, named the Bitrix platform one of the most popular CMS worldwide
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ABOUT BITRIX

Bitrix is a privately-owned company developing an **advanced business** communications platform to bridge SMBs with their customers (Internet), partners (Extranet) and employees (Intranet).

Founded in 1998 and located in Alexandria, VA, Bitrix now incorporates 90+ staff, 40,000+ customers and 4,000+ partners worldwide. The customer list includes Hyundai, Volkswagen, Panasonic, Gazprom, Xerox, PricewaterhouseCoopers, DPD, VTB, Samsung and Cosmopolitan. Localized into 13 languages, the company's products are distinguished for their pioneering technology, unique security features, extreme performance capacity and unmatched ease-of-use.

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