HomeWorkZ: An Independent Home Improvement Company

Team 2

Final Business Case

Executive Summary

This instructive and informative strategic initiative is about an Independent Home Improvement Company called **'HomeWorkZ'.** HomeWorkZ is an independent home improvement company that hopes to take advantage of consumer demand for environmentally friendly products and services to shape the traditional and smart home building and improvement market. HomeWorkZ intends to design a website and mobile application to create a faster and easier interaction platform between its customers and employee base. This new application will allow both the consumer and employee to select the best features will enable them to retrofit and renovate their properties in a highly energy-efficient manner.

This project is expected to have an **ROI** of 466.3%, once implemented, a third-party cloud provider will host the final applications with the intended purpose of providing a web presence to gain potential customers interested in a variety of high-quality home improvement services and solutions offered at a competitive and affordable rate. The HomeWorkz website and mobile application interface (API) should provide all the tools and information necessary to complete both traditional and smart home improvement, remodeling, retrofitting and decorating projects.

Business Context

In the ever-growing real-estate sector, it has become tougher for home improvement companies to manage multiple projects simultaneously while at the same time deliver on satisfactory requirements of potential homeowners. Fortunately, the home improvement industry has made modest gains recovering approximately 80% of its value from the pre-recession levels of 2007. The Home Improvement Research Institute (HIRI) projects the gradual acceleration of installed smart home systems to increase substantially in 2017 and 2018. With existing home sales expected to reach their plateau; macroeconomic forecast shows a total home improvement product sales increase by 4.7% nationally while consumer market sales will increase by 4.8%.

The HomeWorkZ organization has effectively evaluated the list of alternatives and economics of migrating to the cloud. The HomeWorkZ financial office has examined all the pertinent budget factors that currently impact the organization specifically taking into the critical performance indicators that can significantly increase the economic opportunity and benefits to the organization. Chief among them are:

- Capital Expenditures (CAPEX)
- Operational Expenses (OPEX)
- Return on Investment (ROI)
- Total Cost of Ownership (TCO**)**
- Profit Margin

Outsourcing the HomeWorkz web and mobile application to a cloud-based provider is more financially solvent. Cloud-based providers are in a better financial position and have the

economic strength to employee specialist specifically trained and dedicated to supporting cloud-based solutions at minimum cost. They provide for extended human-relations reach allowing the cloud-provider to better vet potential employee candidates to support the application thru the use of periodic background investigations and security screenings. A Cloud-based solution will allow for the immediate deployment of software to market a facilitate the update of patches minimizing the period between patch vulnerabilities and software releases. The cloud vendor will provide redundant software and hardware resources available in case of unexpected emergencies. Having the rapid incident response that comes with cloud-based expertise will alleviate significant delays commonly experienced between security incidents and security response. By continuously monitoring system resources for intrusions cloud providers are better equipped to identify and mitigate risks and threats should an incident occur.

After reviewing data from the Home Improvement Research Institute (HIRI) and the Joint Center for Housing Studies displayed in Figure 1, the HomeWorkZ organization feels that it there is a compelling case take advantage of consumer demand for environmentally friendly products and services to shape the smart home building and home improvement market. It estimated that consumer spending on remodeling and renovation of home projects is expected to see substantial gains over the next several decades. For example, as presented in Figure 2 the projected revenue for the smart home market is expected to increase from approximately 13.77 billion in 2017 to 22.4 billion by the year 2020. Market forecasts from the collected data below suggest that the Washington D.C. metro area is projected to see a 3.8 percent annual increase in remodeling and renovation efforts growth alone.

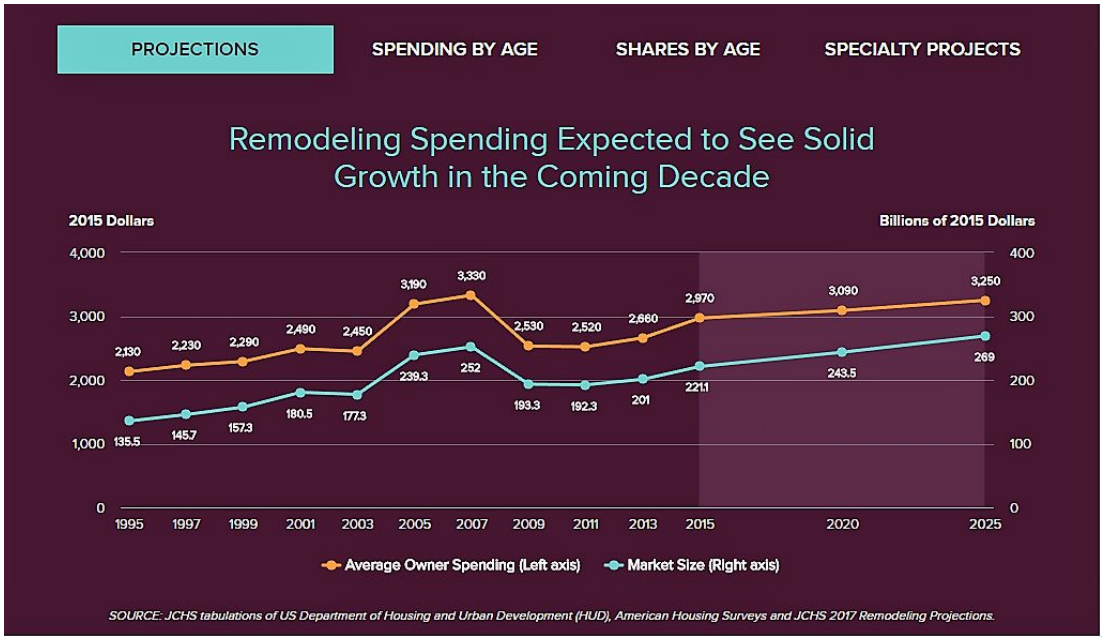

Figure1. "Demographic Change and the Remodeling Outlook." Digital image. Joint Center for Housing Studies, Harvard University. May 21, 2017.

http://www.jchs.harvard.edu/remodeling-2017.

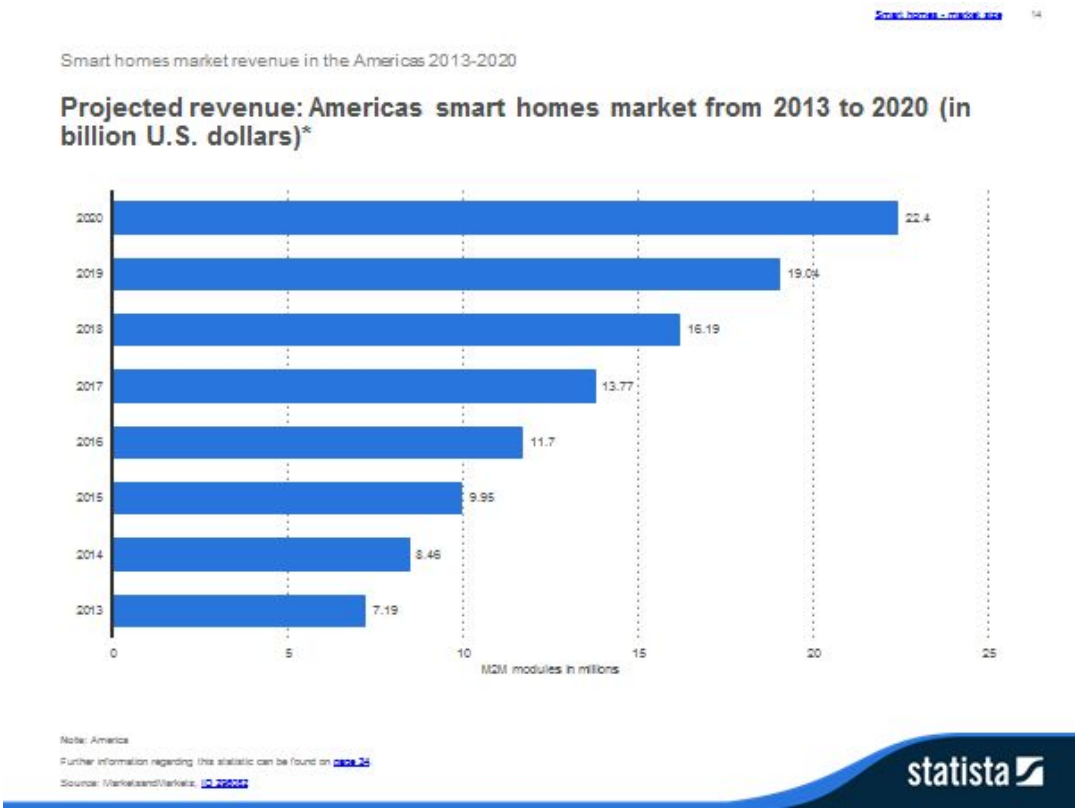

Figure2. “Projected revenue: Americas smart homes market from 2013 to 2020 (in billion U.S. dollars) Digital Image. *” Smart Home - United States | Statista Market Forecast. Statista. Accessed May 21, 2017. https://www.statista.com/outlook/279/109/smart-home/united-state/.

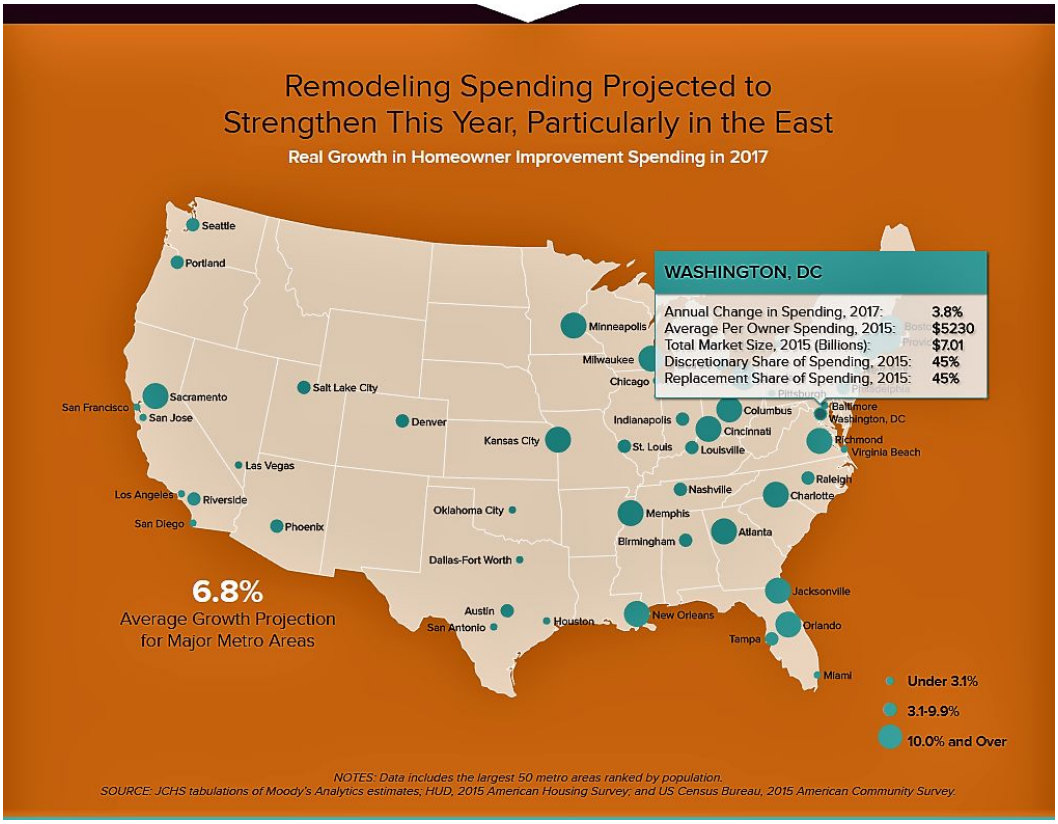

Figure3. "Demographic Change and the Remodeling Outlook." Digital image. Joint Center for Housing Studies, Harvard University. May 21, 2017.

http://www.jchs.harvard.edu/remodeling-2017.

Analysis Of Alternatives

A effective business case must be decided upon for the HomeworkZ application and website development. The first case has a higher upfront cost, the second case was the highest cost and highest risk option, and the last case is the lowest risk but has the highest on going costs. It has been decided that the third case will be the choice moving forward. This case does not require buying in-house servers. Considering that the project is starting small the risk of buying too much up front is risky. The table below taken into account in combination with the financial analysis gives an overview of the considerations that were used to assess the most viable option for the HomeWorkZ web and mobile application design initiative.

Consideration	Cloud	On Premise	Hybrid
Location	Data center	On Premise	Data Center & On premise
Ownership	Lease	Own	Own & Lease
IT infrastructure	Included	Company	Company & included
Management	3rd Party	Own	Self & Third Party
Scale	Usually built for peak	On demand	Peak & on demand
Technology updates	Automatic	Software releases	Automatic and software releases
IT staff	Low – No professional services	Low – no professional services	Low & no professional services
Time to value with Thycotic	Nearly immediate	Fast	Fast
Licensing	Subscription – includes maintenance	Perpetual & maintenance	Perpetual and subscription
Budget	Op-Ex	Cap-Ex	Op-Ex & Cap-Ex

Final Choice and Justification:

Considering that the application and website are for a smaller company with a higher chance of failure, the low-risk option of outsourcing to the cloud is clearly the best option. The ROI and NPV over a five year period are the highest considering the high price of in-house servers. If the website and application become extremely popular quickly, the cloud is the far more scalable option. Moving the infrastructure to the cloud is deemed to be the most feasible solution it provides less risk, less cost and allows for more flexibility and future scalability.

Alternative 1 (Base Case Hybrid-Solution)

- **Magnitude and Timing effects:** None
- **Calculations:**
    - **NPV - $2534**
    - **ROI - %114**

Alternative 2 (Total Cost of Ownership for an On-Premise Application Management System)

- **Magnitude and Timing effects:** The Discounted Cash Flow overtime for Alternative 2 is less than Base Case but equivalent to Alternative 3. However, the NPV and ROI are lower for Alternative 2 than for both the Base Case and Alternative 3.
- **Calculations:**
    - **NPV - $1,205**
    - **ROI - %105.79**

Alternative 3: (Using the cloud to host the services)

- **Magnitude and Timing effects:**
- **Calculations:**
    - **NPV - $21,962**
    - **ROI - 466.03%**

	Hybrid	**On Premise**	**Cloud**
NPV	$2534	$1205	$21,962
ROI	114%	105.79%	466.03%
PAYBACK YEAR	YEAR 4	YEAR 4	YEAR 1

Comparison of Assumptions

Assumptions Alternative 1

(Base Hybrid-Solution)

Pros	Cons
Can leverage existing on-premises technology investments and take advantage enterprise content management solution running in the public cloud or a private cloud	Requires expensive capital investment in hardware and infrastructure. Customer responsible for physical control over servers. Requires space in your office for rack space or a server room/closet, as well as dedicated IT support
Hosting flexibility can seamlessly integrate with existing on-premises systems like an ERP or CRM, such as SAP or Microsoft Dynamics.	Reduced operational cost but not as much as total cloud solution, customer must maintain some of the associated hardware
Supports on-premises deployments and can be integrated into existing cloud-based business applications, such as Salesforce, Microsoft Dynamics Online or NetSuite	Potentially more susceptible to data loss during disaster situations due to in-house location. Business continuity and disaster recovery plan will reflect how much data will be lost in an emergency.
Local control of the data.	Partial uptime guarantees.

Assumptions Alternative 2

(Total Cost of Ownership for an On-Premise Application Management System)

Pros	Cons
Gives customer physical control over servers.	Requires expensive capital investment in hardware and infrastructure.
Keeps critical data in-house; no third-party provider has access to customer information.	Requires space in your office for rack space or a server room/closet, as well as dedicated IT support.
No need to rely on an Internet connection for access to data.	Potentially more susceptible to data loss during disaster situations due to in-house location. Business continuity and disaster recovery plan will reflect how much data will be lost in an emergency.
Potentiality more cost-effective for companies if not concerned with uptime.	No uptime guarantees.

Assumptions Alternative 3: (Using the cloud to host the services)

Pros	Cons
Eliminates the need for onsite hardware or capital expenses.	Potential speed of the Internet connection limits the user experience.
Rapid dynamic scalability; resources can be added to as needed. Solutions are often on-demand, so you only pay for the options you use	Third party cloud services vendor potentially could have direct access to data or customer personal identifiable information (PII)
Employees can connect from anywhere, using any computer, tablet, or smartphone and can accommodate BYOD (bring your own device) policies.	If the Internet connection goes down no access to any of your information.
Data can be backed up in the cloud frequently minimizing data losses in disaster situations.	The costs can potentially outweigh the benefits for companies not as dependent on uptime.

Financial Analysis

Year	*0 (Initial Investment)*	*1*	*2*	*3*	*4*	*5*	
Benefits	$0.00	$6,000.00	$7,000.00	$8,000.00	$9,000.00	$10,000.00	$40,000.00
Expenses	-$6,000	$3,500	-$3,500	$3,500	-$3,500	-$3,500	-$9,500
Net Operating inflow/ (outflow)	-$6,000.00	$9,500.00	$3,500.00	$11,500.00	$5,500.00	$6,500.00	$30,500.00
Asset Purchases	$0						$0
Net cash flow	-$6,000	$9,500	$3,500	$11,500	$5,500	$6,500	$30,500
Cumulative net cash flow		$3,500	$7,000	$18,500	$24,000	$30,500	
DCF		$8,636	$2,893	$8,640	$3,757	$4,036	$27,962
NPV							$21,962
ROI						466.026807	466.03%
Payback Year							Year 1

The ROI is projected at 466.03% and the NPV is $21,962. Because of the low startup cost of the cloud, payback could happen as early as year 1.

HomeWorkZ Sensitivity Analysis

HomeWorkZ Sensitivity Analysis							
		NPV		ROI		Payback	
Scenario	Prob%	Amount	Wt. Outcome	Amount 2	Wt. Outcome	Amount 3	Wt. Outcome
Best Case	10%	$21,962.00	$2,196.20	466.03%	46.60%	1	0.1
Most Likely	40%	$1,205.00	$482	105.79%	42%	4	1.6
Worst Case	60%	$2,534.00	$1,520.40	114.00%	68.40%	4	2.4
Total			$4,199		157%		4.1

Risk Analysis

The risk here can be defined as potential attacks to the source code or the source code being leaked outside the application to competitors, potential ransomware or attacks affecting the organization. Security Policies will be set up in addition to hardware intrusion prevention system and intrusion detection system with service level agreement between organization and vendor. The room for backdoor into the software are deployment will not be tolerated and that current up to date patches and updates will be applied remotely via user acceptance. Some continuous process improvement steps for managing associated risks can be defined below :

Additional risk factors considered for selecting the cloud solution for HomeWorkz application that will be mitigated via comprehensive Service Level Agreement (SLA) with the third party vendor are:

- **Security** – the vendor provides encryption and assurances in writing that data and associated intellectual property will be safe

- **Multitenant Risk** – vendor responsible for inadvertent exposure of customer data to another company that shares platform resources with the company
- **Best practices** – the vendor adhere to and promote cloud security and regulatory best practices
- **Support** – the vendor resolve issues in the event of data loss or crisis
- **Scalability** – the vendor will ensure data capacity limitations and physical as well as potential cost sealing of storage
- **Reliability** – the vendor will be responsible for uptime, recovery margin of error, average annualized rate of failures and mean time between failures that typically occur
- **Availability** – the third party vendor will provide for 24/7 access and support

Failure Modes Effect Analysis (FMEA)

The HomeworkZ organization requires the vendor to employ the use of the Failure Modes and Effects Analysis (FMEA) model to provide a systematic method for evaluating and identifying instances of where and how the HomeworkZ web and application might fail. The FEMA diagram is an adequate tool to assess the relative impact of different failures, to determine the parts of the method that are most in need of modification. The FMEA diagram includes an assessment of the following factors:

- The associated steps in the process
- The potential failure modes for what could go wrong
- The potential causes failures and why a failure happens
- The potential effects of the failure and would be the consequences of each failure.

The associated Failure Modes and Effects Analysis (FMEA) diagram for the HomeWorkZ mobile and web application can be reviewed at:

https://docs.google.com/spreadsheets/d/1VIYi4cAC0Eu2nZ3wZKTP0r2sWXXc9ZwQa9UhHghcQ1k/edit#gid=0

Projected timeline and milestones:

The initiative will be handled by the project manager to align with the stakeholders expectations and weekly documented meetings will take place for controls and progress of project. Scope Creep requires constant vigilance as clients vision has to be understood in addition to project requirements, Process for changing the scope requirements are only to be addressed by the project manager during project meetings and a guard against gold plating will be implemented in addition to use of online project management software. The timeline is illustrated in the following diagram:

Conclusion

This initiative should be highly encouraged because similar to home furnishings, growth in home improvement also stems from the high interest among consumers to build attractive homes that can be showcased to their families and friends. This category has also been boosted by the ever growing population, which correlates positively with the growth of the property industry. The massive growth in the number of properties being built and maintained has led and will continue to make an impact on the expansion of home improvement business like HomeworkZ.

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