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Old Friends and New Ideas

BY GEORGE S. PARAS

One of the benefits of being involved in the enterprise architecture space from the beginning is that you get to know other learned professionals who also have a history in EA and the value they bring to the table. Leonard (Len) Greski is one such individual.

In the latest issue, Len, currently an executive at Travelport and previously director of e-commerce transformation at Hewlett-Packard, delivers in a big way with our lead story, "Assessing the Value of Software Applications with Business Capability Models."

Next up is a piece from Melanie Nuce, senior vice president of corporate development at GS1 US. In "Trust in Technology: Embracing Digital Transformation Through Open Standards," Melanie notes how the "most forward-thinking companies piloting new technology have committed to exploring revolutionary uses of data. However, they risk time and resources if the data feeding these experiments is not structured and collected consistently." She will get no argument from me.

Wrapping up things is Robert Castles's piece, "How to Empower Your Company to Implement a Successful Digital Transformation Strategy." Castles, who is the chief vision officer at PMG, begins with the following passage: "Charles Darwin once said, 'It is not the strongest of species that survives, nor the most intelligent that survives. It is the one that is the most adaptable to change.' Just ask Home Depot or Walmart." I had to laugh when I read that because I have been using that Darwin quote to kick off many keynote speeches, etc., since 1999. It's been the core of my positioning for years. EA's goal is to position an organization for change, with agility and experimentation as core design points. The message is timeless. **A&G**

GEORGE S. PARAS is editor-in-chief of A&G and an EA mentor at EAdirections. Read his blog at eadirections.com.

ASSESSING THE VALUE OF SOFTWARE APPLICATIONS WITH BUSINESS CAPABILITY MODELS

By Leonard Greski

In "Business Capability Modeling: Theory and Practice," I explained how an organization could model its business capabilities using simple, low-cost tools. Since then I have used the techniques from that article to help organizations make a variety of business and technical decisions. Many organizations struggle to quantify the value produced by one or more applications in an application portfolio.

CAPABILITIES IN CONTEXT

A business capability is a unique combination of people, processes, and physical assets that generate measurable value (figure 1).
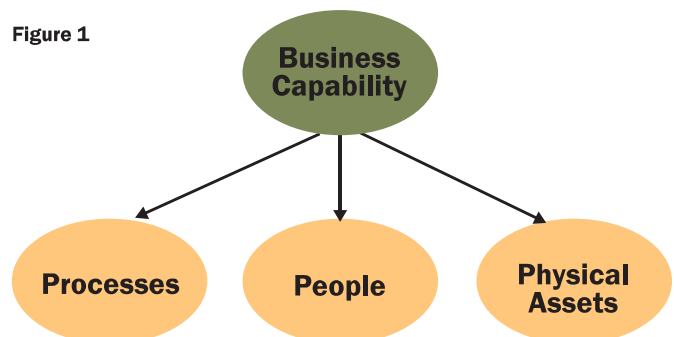
At the highest level of abstraction, every company must solve the "strategy-to-results problem." An organization's strategy creates needs for one or more business

capabilities. Because the costs and benefits generated by capabilities are measurable, they can be used to operationalize business results. Additionally, all organizations exist in a larger environment of customers, other companies, and a variety of regulatory environments. Figure 2 illustrates the causal relationships between strategy, capabilities, results, and the environment.

Figure 2

DEFINING "VALUE"

Value is simply the benefits generated by a capability minus its costs. One of the key concepts in the business capability modeling framework is the idea that a business capability is an asset. That is, capabilities generate value, and we can proactively manage them to increase their value over time.
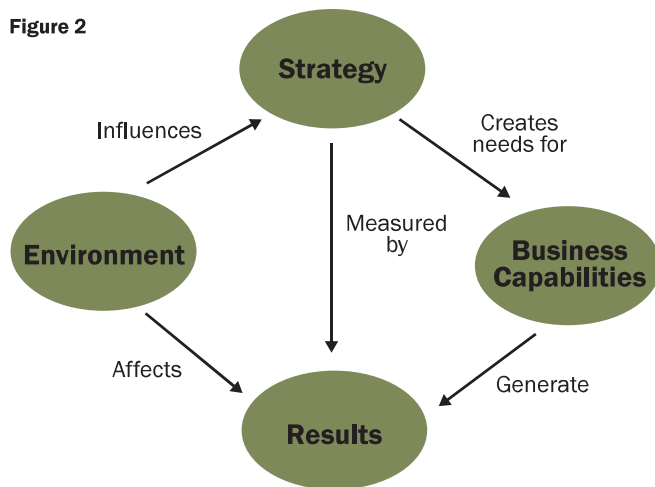
WHY USE THE CAPABILITY MODEL TO ANALYZE SOFTWARE APPLICATIONS?

Software applications are physical assets within the business capability model framework. Therefore, we can use the techniques described in "Business Capability Modeling: Theory and Practice" to assess how applications contribute to the overall value of a business capability. The capability framework is important because many IT departments are led with a "project" focus, with little attention paid to what happens after projects complete.

The capability model provides a more holistic context for a total cost of ownership (TCO) analysis rather than a project-based TCO because it focuses on the ongoing operations of a capability, including quantification of benefits and usage.

THE THREE KEY MODELS

To assess the value generated by a software application, one can build three models to describe usage, benefits, and costs:

- **Benefits Model:** Documents quantifiable benefits expressed in terms of profit or productivity. Ideally the benefits are described as a function of application usage, so that as usage increases, benefits increase in a linear or better (e.g., geometric, exponential, etc.) scale.

- **Cost Model:** Documents direct and indirect costs associated with an application, including labor and nonlabor sources. Both one-time and ongoing costs are modeled so one can calculate a net present value or internal rate of return for an application.

- **Usage Model:** Documents the frequency with which various features of an application are accessed/used by external customers, employees, or business partners. Usage information is a key component of the model because it is required to calculate a cost per unit of value (e.g., an order in an e-commerce website), which measures the efficiency of spend for an application.

CASE STUDY: CHAT VS. VOICE FOR E-COMMERCE CALL CENTER

A company conducting e-commerce in multiple countries had a problem with its customer service center. Increasing call volume in the service center had a negative impact on the e-commerce division's profitability, due to the low-margin products being offered for sale over the web. The company previously experimented with on-premise chat software with the hope that migrating workload in the call center from voice calls to chats would alleviate the problem, but the incumbent chat software vendor's licensing model made it infeasible to expand the service to multiple countries and business units.

The company decided to solicit proposals for Software as a Service (SaaS) chat capability that could be integrated into the company's e-commerce sites. After reviewing the proposals and some creative negotiations with the finalists, the company was able to secure an

"all you can eat" plan for five years with year 1 fees at approximately $37,000 per month, and annual fee increases capped at 4% or the rate of inflation, whichever was higher.

The architecture team built three models to evaluate how the software would be used during year 1 of the deal, and a five-year statement of cash flows.

Usage Model

The e-commerce customer service center supported business to business (B2B) customers in four countries, a global consumer business, and three categories of product support. The product management team worked with customer support to gather information about the timing with which the various customer service teams would be trained to use the new chat system, resulting in the usage model for year 1 as seen in figure 3.

Annualized totals were used to calculate benefits in years 2 through 5, with an assumption of a 10% growth in call volume each year.

Cost Model

The cost model includes about $360,000 in startup costs and approximately $450,000 in annual operations costs. Given that many applications include a variety of forms of labor, our cost template includes sections for both support and application maintenance. As we did with the usage model, the team annualized and modeled year 1 operating costs with a 4% inflation rate for years 2 through 5. (See figure 4 on page 6.)

Benefits Model

Three major types of benefits are generated by this service. First, it allows work done by a high-cost onshore service representative to be effectively handled by lower-cost offshore representatives. Second, after experimenting with chat versus call services, the customer service team learned that a customer service agent can handle two chats simultaneously. Finally, increasing the rate at which a fixed number of agents can answer chats improves the wait time for customers. Beyond the business benefits of chat versus call, a more cost-effective chat service enabled the team to claim significant cost avoidance benefits as they expanded the use of chat across e-commerce customer service teams.

The financial benefits in year 1 are illustrated in figure 5 on page 6.

The benefits model demonstrates that even at a 15% ROIC target, the chat application generates more than enough benefits to be operated profitably.

Figure 3

Capability Usage Model for Chat Software

	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Annualized Total
Service Consumers													
B2B Country A				480	1,500	1,150	700	675	450	760	800	920	9,913
B2B Country B				520	1,500	1,300	1,600	1,100	1,300	2,000	2,100	2,420	18,453
B2B Country C				-	10	5	5	5	5	5	10	10	73
B2B Country D				30	-	5	10	100	270	240	250	290	1,593
Consumer Business				18,670	30,000	35,000	30,000	29,000	28,500	30,500	32,030	36,830	360,707
Post Shipment Support				-	-	-	-	-	-	40	40	50	173
Pre Sales Support				-	-	-	-	-	-	4,043	4,250	4,890	17,577
Other Customer Support				-	-	-	-	-	-	7	10	15	43
Total				19,700	33,010	37,460	32,315	30,880	30,525	37,595	39,490	45,425	408,533
Technology cost per transaction				1.8897	1.1278	0.9938	1.1520	1.2056	1.2196	0.9902	0.9427	0.8195	
Percentage change vs. prior month					-40%	-12%	16%	5%	1%	-19%	-5%	-13%	

> To assess the value generated by a software application, one can build three models to describe usage, benefits, and costs.

Figure 4

Capability Cost Model for Chat Software

	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
One Time Costs													
Cloud production setup				15,000									15,000
Professional services				46,000									46,000
Customization reporting				6,000									6,000
Customization maintenance				3,000									3,000
Software Licensing: legacy software exit	230,000			55,000									
Hosting fees: legacy chat software	3,000	3,000	3,000										9,000
Total one time costs	233,000	3,000	3,000	125,000	-	-	-	-	-	-	-	-	364,000
Ongoing Costs	**Jan-19**	**Feb-19**	**Mar-19**	**Apr-19**	**May-19**	**Jun-19**	**Jul-19**	**Aug-19**	**Sep-19**	**Oct-19**	**Nov-19**	**Dec-19**	**Total**
Non-labor													
Software Licensing: chat software	-	-	-	27,778	27,778	27,778	27,778	27,778	27,778	27,778	27,778	27,778	250,000
Hosting fees: chat software				9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	85,050
Labor (Support)													
Central support allocation	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-
Labor (Ongoing Maintenance)													
Employees	-	-	-	-	-	-	-	-	-	-	-	-	-
Low Cost Contractors	-	-	-	-	-	-	-	-	-	-	-	-	-
High Cost Contractors	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Operating Cost	-	-	-	37,228	37,228	37,228	37,228	37,228	37,228	37,228	37,228	37,228	335,050

Figure 5

Capability Benefits Model for Chat Software

	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
Required Benefits Model (Run & Maintain Cost)													
Benefits needed to exceed 9% weighted average cost of capital	-	-	-	40,578	40,578	40,578	40,578	40,578	40,578	40,578	40,578	40,578	365,205
Benefits needed to exceed 15% ROIC target	-	-	-	42,812	42,812	42,812	42,812	42,812	42,812	42,812	42,812	42,812	385,308
Required Benefits Model (Total Cost)													
Benefits needed to exceed 9% weighted average cost of capital	-	-	-	40,578	40,578	40,578	40,578	40,578	40,578	40,578	40,578	40,578	365,205
Benefits needed to exceed 15% ROIC target	-	-	-	42,812	42,812	42,812	42,812	42,812	42,812	42,812	42,812	42,812	385,308
Actual Benefits by Consumer / Business Capability													
Software license cost avoidance: exiting legacy				206,066			258,351			258,351			722,768
Hosting fees: legacy chat software				3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	27,000
Chat benefit Onshore				123,445	206,849	234,734	202,494	193,502	191,277	235,580	247,454	284,644	2,559,972
Chat benefit Offshore				11,598	19,435	22,055	19,025	18,181	17,972	22,134	23,250	26,744	240,524
Total Benefits													3,550,264

CONCLUSIONS

SaaS Chat Service Is a Financial Winner

For the e-commerce business in our case study, changing from an on-premise chat application with a high software license to a lower-cost SaaS application enabled the company to grow its chat usage in a profitable manner. In fact, the benefits were so compelling that the project is cash flow positive in year 1, and has a $13 million NPV with a 15% hurdle rate. (See figure 6.)

What a "Healthy" Application Looks Like

At a strategic level the health of an application is a function of its value, the degree to which its benefits exceed its costs. In practice, a healthy application has the following characteristics:

1. Each consumer using the application generates quantifiable benefits.

2. The total annual benefits generated by an application exceed its annual operating cost plus a hurdle rate, indicating that the organization is making a positive return on the application's operating cost.

3. The usage of the application is stable or growing.

4. The maintenance cost for the application is stable over time and includes sufficient labor capacity to meet or exceed service level agreements (such as time to respond, time to fix, etc.).

5. As usage increases, the operating cost of the application remains flat or increases at a less than linear scale, as observed in a cost per transaction metric.

The central purpose of enterprise architecture in an organization is to be an objective guide to decision making about business and technology capabilities. By using the techniques outlined in this article, enterprise architects can guide organizations to make wise investment decisions in software applications. **A&G**

LEONARD GRESKI joined Travelport in December 2015 and currently leads the Solution Engineering team within Global Technology Services. His team is responsible for the delivery of Travelport's core distribution platforms, middleware and travel supplier connections, and model-driven application programming interface products based on the Open Travel Alliance standard. Leonard was previously director of eCommerce Transformation at Hewlett-Packard. Prior to joining Hewlett-Packard, Leonard led a variety of e-commerce initiatives at W.W. Grainger. His leadership helped grainger.com achieve the #15 ranking in the Internet Retailer 500 in 2011, and the #76 ranking in the Mobile Retailer 400 within 12 months of launching mobile commerce.

Figure 6
5 Year Cash Flow Model for Chat Software

	Year 1	Year 2	Year 3	Year 4	Year 5
Benefits	$ 3,550,000	$ 4,180,000	$ 4,598,000	$ 5,058,000	$ 5,564,000
Costs	$ 699,000	$ 465,000	$ 484,000	$ 503,000	$ 523,000
Cash Flow	$ 2,851,000	$ 3,715,000	$ 4,114,000	$ 4,555,000	$ 5,041,000
NPV (15% hurdle)	$13,103,830				