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Getting Your CPQ Strategy Right

For Your Industry and Organization

Summary

CPQ automation has lots of buzz at the moment, being rightly considered a potentially large value driver for companies with complex product portfolios and commercial processes. However, capturing the value is not easy: projects can be bogged down by a variety of factors, so a focus on the "must wins" is critical.

In this whitepaper, we review the sources of value from CPQ and offer practical guidance on how to think about CPQ challenges, balancing value potential with risk, cost and time-to-value.

Introduction

Over the last couple of years there has been a tremendous amount of buzz about CPQ software (Configure-Price-Quote). Searches for the term "CPQ" are running at twice the rate of just a year ago and more than 4 times the rate of 5 years ago (see Figure 1). According to Gartner[1], the market for CPQ software was $570m in 2015 and is predicted to continue growing at 20% a year for the next few years. Clearly this is an important investment area for B2B companies.

Having said this, there is no common definition of the scope of CPQ solutions, and the benefits described can vary tremendously. It's not clear which companies will gain the most, nor which aspects of the solution they should focus on. In this whitepaper, I will try to help shed some light on these topics, aiming to give practical tips and tools to companies assessing if CPQ solutions are right for them and how best to get started on the journey.
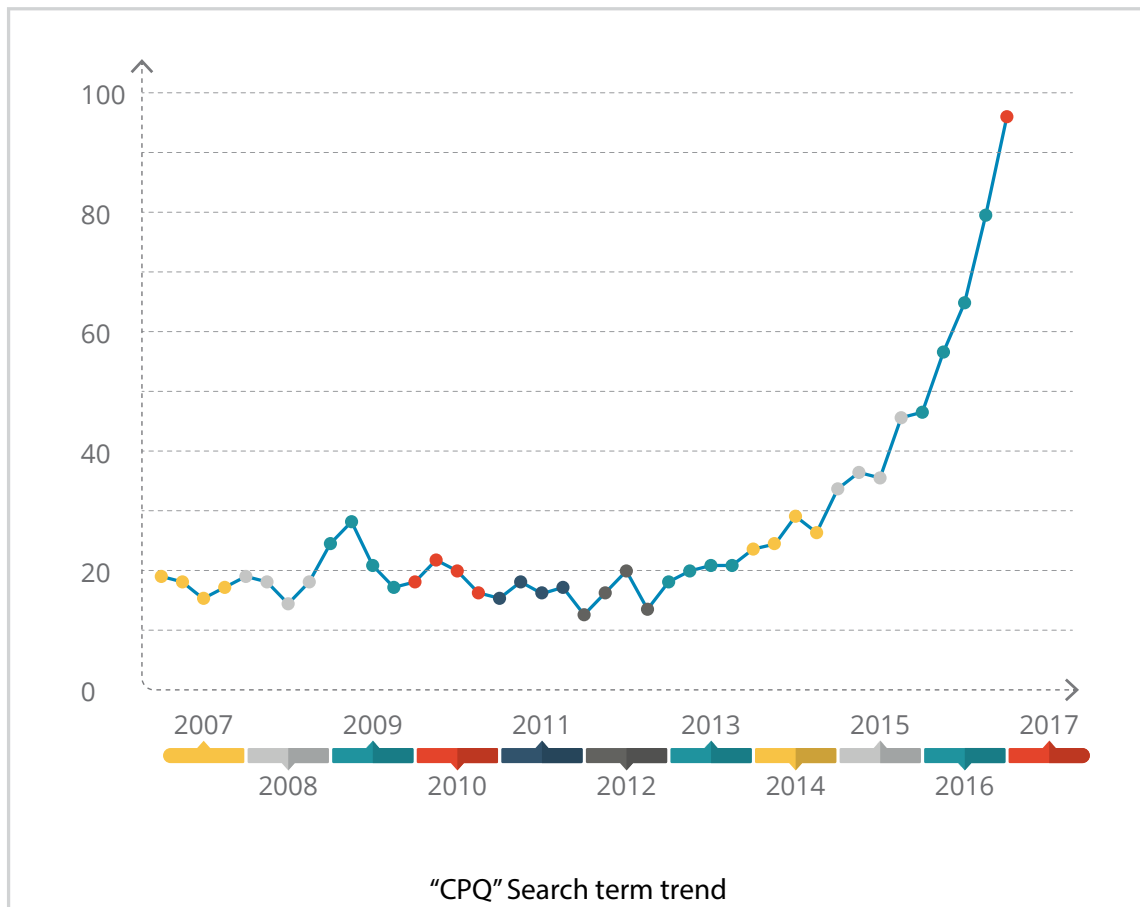

"CPQ" Search term trend

Figure 1: Relative number of Google searches for "CPQ" in the "Business and Industrial" category. Source: Google Trends 2017-05-06

1   Forbes, 11/2016: https://www.forbes.com/sites/louiscolumbus/2016/11/05/cloud-based-cpq-continues-to-be-one-of-the-hottest-enterprise-apps-of-2016/#3d87a6876dc4

What is CPQ? And why all the hype?

Definitions of CPQ vary depending on the source, with vendors giving definitions biased towards the part of CPQ where they are strongest. A good, balanced definition comes from Gartner[2] : "CPQ software supports the configuration, pricing and quote generation activities that accompany solution and negotiated selling."

The earliest CPQ solutions were focused mostly on the C (Configuration), and used by engineers to avoid unworkable products (e.g. only allowing a truck to have a powerful enough engine as an option), with the P and Q secondary. In the last few years, the emphasis has shifted to the Sales process and includes a broader set of business challenges.

Digging into the next level:

- **Configuration:** enable Sales to combine product, components and services into customer-specific packages based on pre-defined rules and constraints.

- **Price:** decide the price (including discounts) appropriate for each product and service package for each customer.

- **Quote:** generate a quote or proposal based on the selected configuration and pricing, including version control and approvals.

See Figure 2 for some of the specific types of processes that are supported in each of the 3 steps.
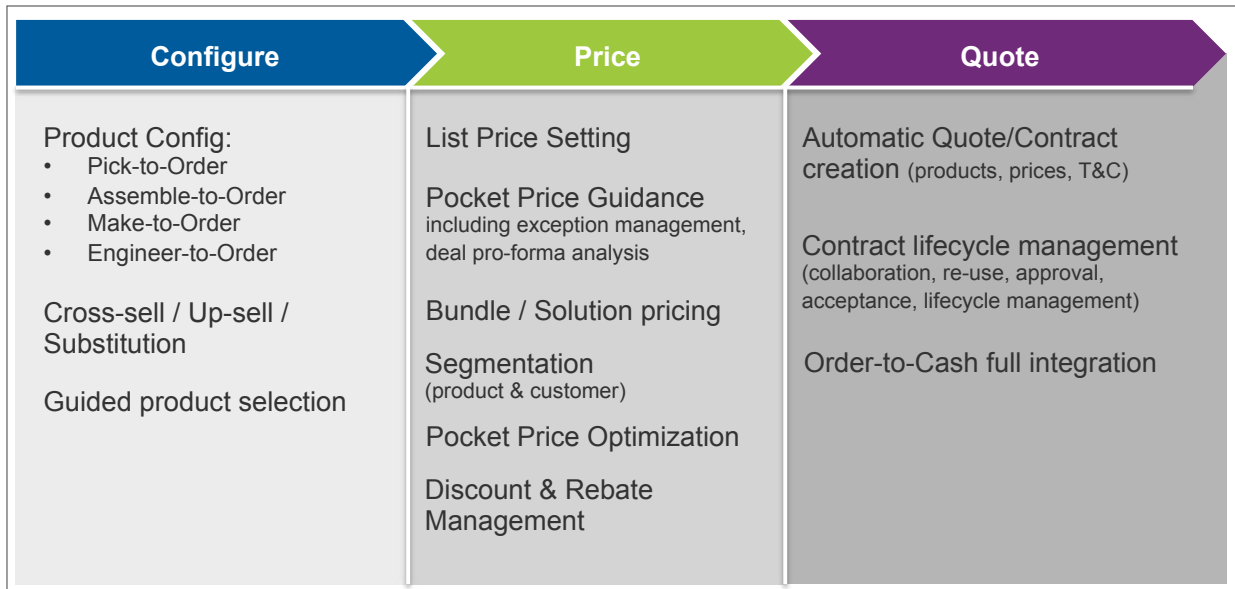
Configure	Price	Quote
Product Config: • Pick-to-Order • Assemble-to-Order • Make-to-Order • Engineer-to-Order Cross-sell / Up-sell / Substitution Guided product selection	List Price Setting Pocket Price Guidance including exception management, deal pro-forma analysis Bundle / Solution pricing Segmentation (product & customer) Pocket Price Optimization Discount & Rebate Management	Automatic Quote/Contract creation (products, prices, T&C) Contract lifecycle management (collaboration, re-use, approval, acceptance, lifecycle management) Order-to-Cash full integration

Figure 2: *subcomponents of CPQ*

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2   Gartner, 2017: http://www.gartner.com/it-glossary/configure-price-quote-cpq-application-suites

From these definitions it's clear that CPQ software can be helpful where at least some of the following are true:

- There is some complexity in the product side—be it bundles, configured products or services, or solutions.

- We are considering the "whole price" down to pocket price and assuming prices may vary by customers.

- The quoting process is complex and time consuming, perhaps needing amendments over time, and generally will have an element of negotiation.

- There is a desire for greater downstream automation, to enable self-service by the Sales teams or even directly with customers (e.g. enable subscriptions in software).

Which capabilities are potentially addressed by CPQ software?

- Guide Sales to the products and services that are compatible and appropriate

- Guide Sales to the products and services with the highest value for the customer, increasing the win-rate

- Sell solutions and bundles even in commodity-like markets

- Price those products and services to align with the customers' perceived value and willingness-to-pay

- Quotes and contract offers are managed accurately and efficiently

It's not hard to imagine that many companies would benefit from these capabilities and see improvement to the bottom line! Let's now understand where the value comes from and some of the challenges in capturing it.

Estimating the Value of CPQ Solutions

At the highest level, value from CPQ solutions comes from improving the efficiency and/or the *effectiveness* of the commercial process. The efficiency side is about reducing costs for the same amount of output: the amount of resources, time and effort it takes to complete a quotation, including all the rework (e.g. because of errors) that happens along the way. Ideally, this reduces cost rather than requiring more quotations.

Effectiveness is made up of 3 components we can affect with CPQ: 1) price 2) quote size and 3) quote win-rate. This is the area that will have the highest value (as we will see), although it is also harder to estimate and measure the impact.
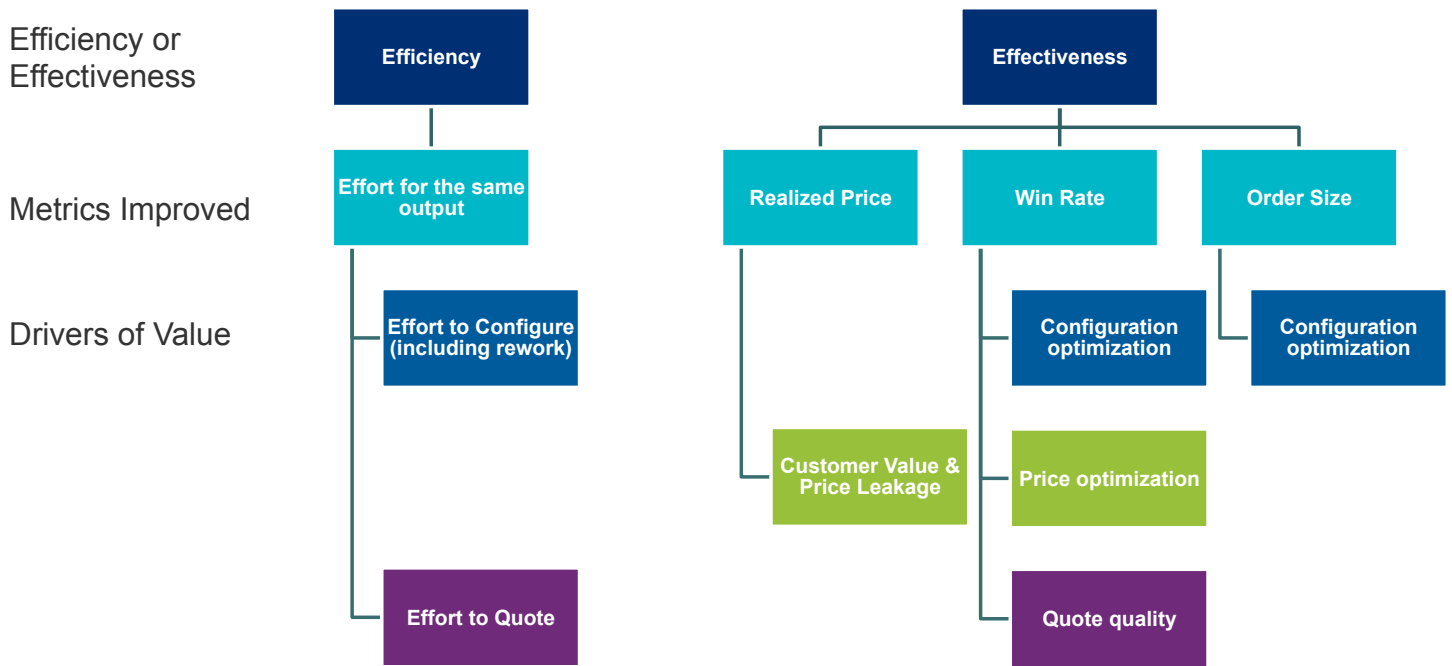
Efficiency or Effectiveness	Efficiency		Effectiveness		
Metrics Improved	Effort for the same output		Realized Price	Win Rate	Order Size
Drivers of Value		Effort to Configure (including rework)		Configuration optimization	Configuration optimization
			Customer Value & Price Leakage	Price optimization	
		Effort to Quote		Quote quality	

Table 1: *Drivers of profitability improvement*

Table 1 shows how each of the CPQ elements contributes to each of 7 benefit areas. I've focused on only the most impactful associations here to keep it practical.

Next we need to estimate the potential benefits in each area. You can try this for your company's profit and loss (P&L) statement with the online tool available at http://www.vendavo.com/dawn-of-Intelligent-cpq/. Here we'll assume a company represented in Figure 3. This company has a 40% gross profit margin, 10% costs for Sales, 5% for Marketing and another 10% for R&D and general administration leaving a net profit margin of 10%.
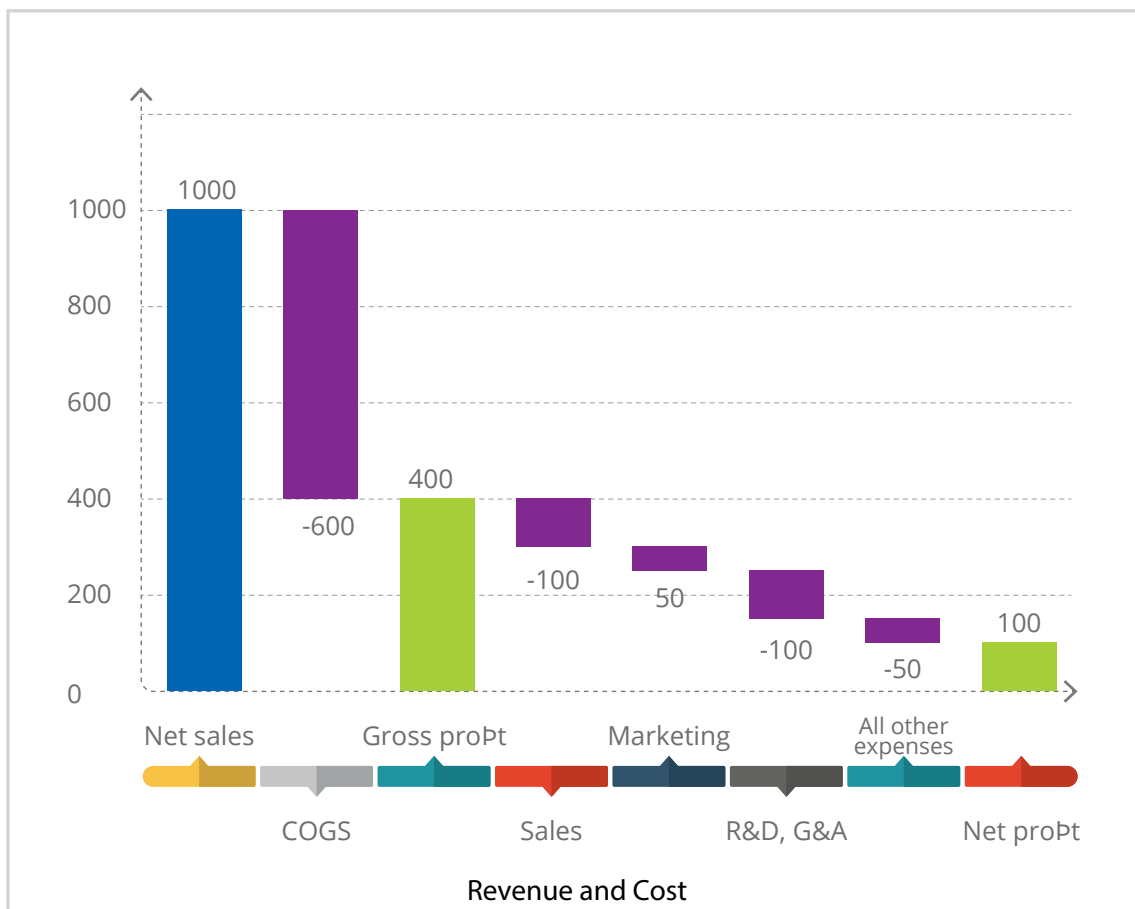
Figure 3: Example company P&L used in the value estimation

For this 'base case' we'll assume that the company has moderate complexity across all aspects of CPQ processes giving us ample room to improve profitability. With the online tool you can modify both the P&L statement and CPQ complexity to get an estimate of the value opportunity for your company. The logic used in the model is described in Appendix 1.

Examples of improvement areas that might be expected are shown in Figures 4-7 which show:

- **CPQ source of value**: Pricing is largest with quotation only accounting for a small part of the value (Figure 4)
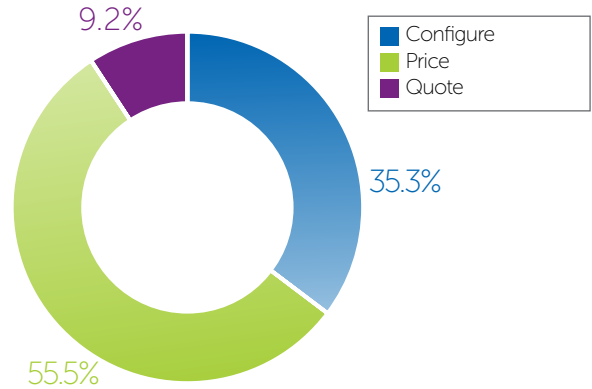
9.2%

Configure
Price
Quote

35.3%

55.5%

Figure 4: Sources of value from CPQ

- **Detailed drivers of sources of value** (see table 1): Pricing, Configuration Win-Rate, and Price Win-Rate are the top 3 sources accounting for about 75% of the value (Figure 5)
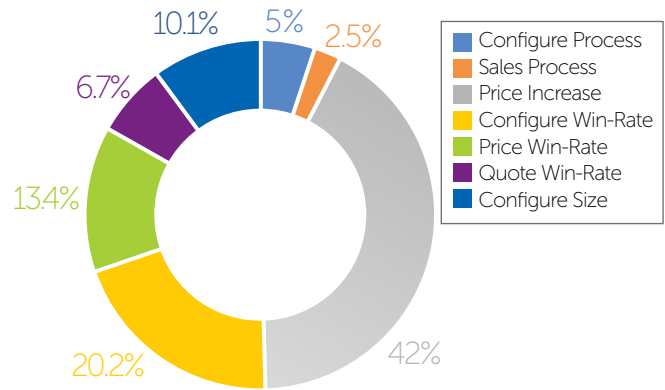
10.1%   5%   2.5%

6.7%

Configure Process
Sales Process
Price Increase
Configure Win-Rate
Price Win-Rate
Quote Win-Rate
Configure Size

13.4%

20.2%   42%

Figure 5: Detailed sources of value from CPQ

- **Improved metrics from CPQ**: more than 80% of the value is associated with improving the pricing and the quote win-rate (Figure 6)

10.1%   7.6%

Process_Efficiency
Price_Increase
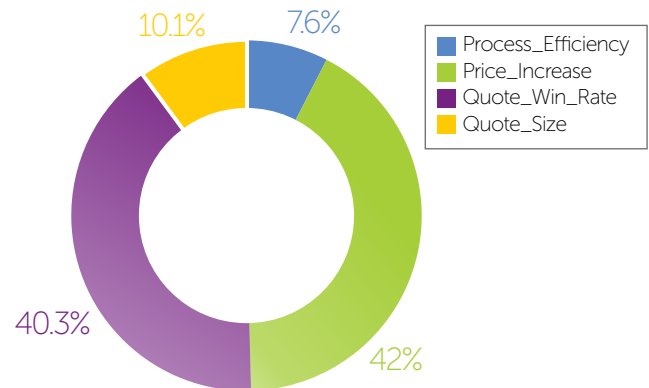Quote_Win_Rate
Quote_Size

40.3%

42%

Figure 6: Metric improvment from CPQ

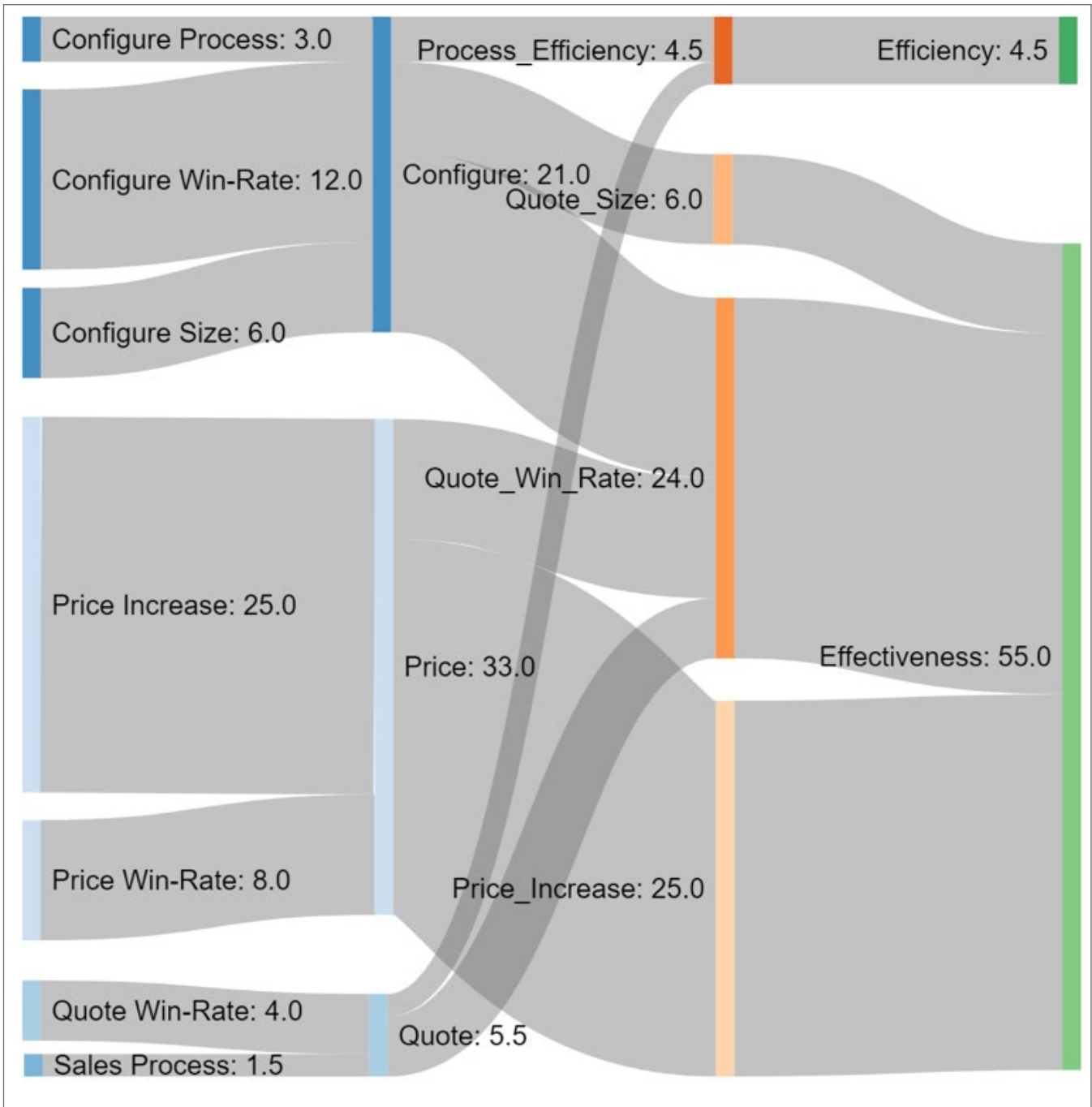The relationships between different drivers and metrics of value are shown in Figure 7.

Figure 7: Understanding how CPQ benefits flow from the improvement area to CPQ area to eachmetric and to efficiency or effectiveness

A few quick immediate observations from this analysis:

- There is a lot of benefit to be had from doing CPQ right. Even in the medium scenario there is the opportunity for a more than 50% increase in profitability.

- Half of these benefits come from pricing – clearly something that needs to be top of mind.

- Most of the benefits come from effectiveness improvements, not efficiency, even though the efficiency challenges are likely the ones that your teams are complaining about.

- Lots of benefits that show up in the quotation process are driven from the configuration and pricing processes. Upstream causes many of the challenges, with the quoting process itself not the key driver of quoting improvement opportunities.

- The drivers of value vary significantly depending on level of complexity in each of the 3 areas (configuration, pricing, quoting). It's important to understand where you fit before improvement efforts begin.

Figure 8 shows the size of the value improvement potential from different complexity scenarios. The improvements vary from about 25% for the simplest cases up to more than doubling the profit for the highest complexity cases. However, that additional opportunity in complex cases comes with a big caveat: the most complex cases are also those that require the biggest investment, have the longest time-to-value, and have the highest risk of disappointing. Next, let's look at why you should be afraid of too much complexity.
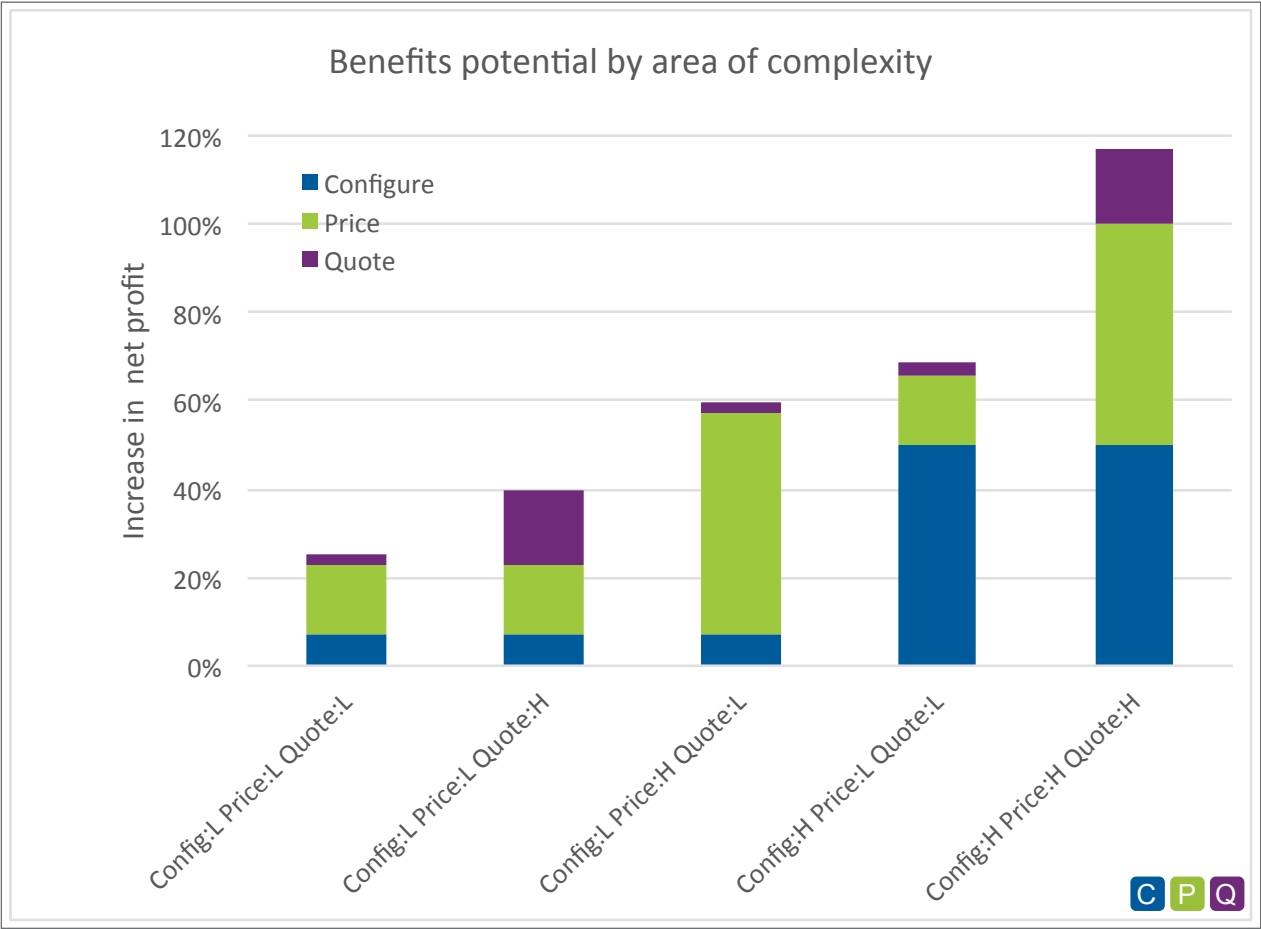
Figure 8: Variation in improvement opportunity based on the level of CPQ complexity

The risks of complexity

In theory you can maximize your benefits by automating of all aspects of CPQ—albeit with varying benefits depending on your situation. In practice this is not a good idea: complexity is a killer of these types of projects!

Why is complexity so expensive?

Why is this? A simple example[3] shows the impact. If we measure complexity as the number of links between items, what happens when the number of items increases. With 1 item we have 0 links, 2 items have 1 link, 3 items 3 links.

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3   Example taken from C. Siefert and S. Stallbaum, APICS2014 The Impact of Complexity Costs on Operations Planning

As you can see from Figure 9 the number of links goes up exponentially. The same concept applies to automating systems: as the number of elements of the solution increases, the number of components that all need to work and the links between them go up. This can be reduced to some extent by working smartly, but the underlying logic remains: complexity goes up faster than the size of the project.

Figure 10 shows graphically the impact the 'cost of complexity' can have as a project gets bigger: early on the value received greatly exceeds the cost of implementation, but as the complexity rises, the Return on Investment (ROI) starts to flatten and ultimately go down.
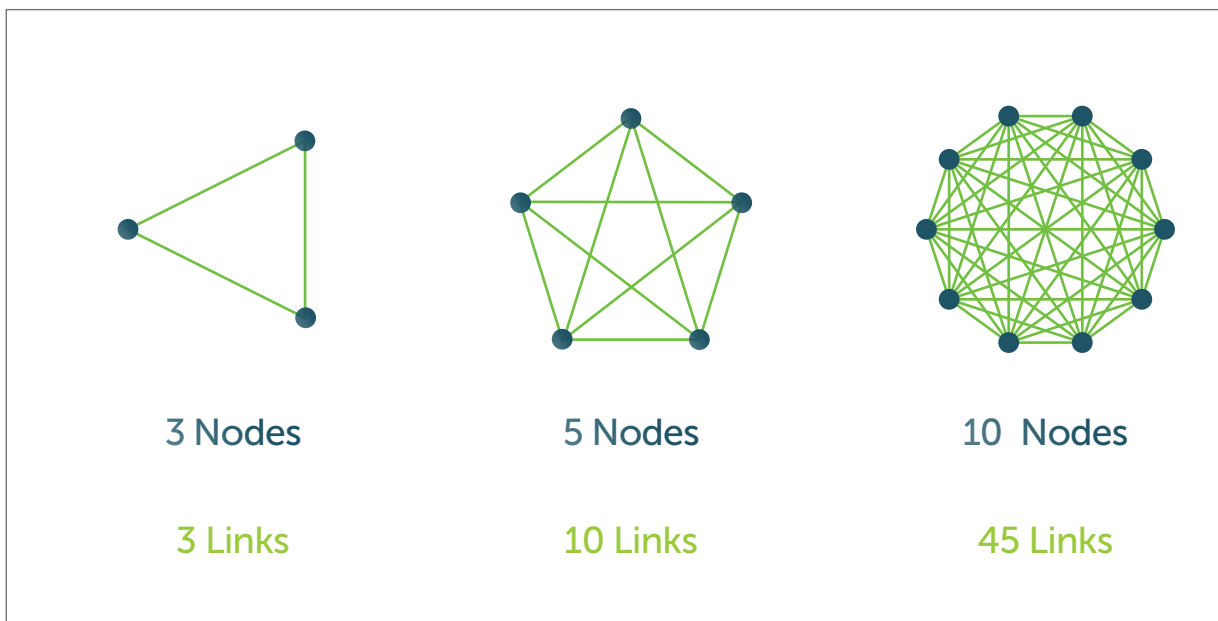

3 Nodes	5 Nodes	10 Nodes
3 Links	10 Links	45 Links

Figure 9: the number of linked elements in a system quickly gets more complex
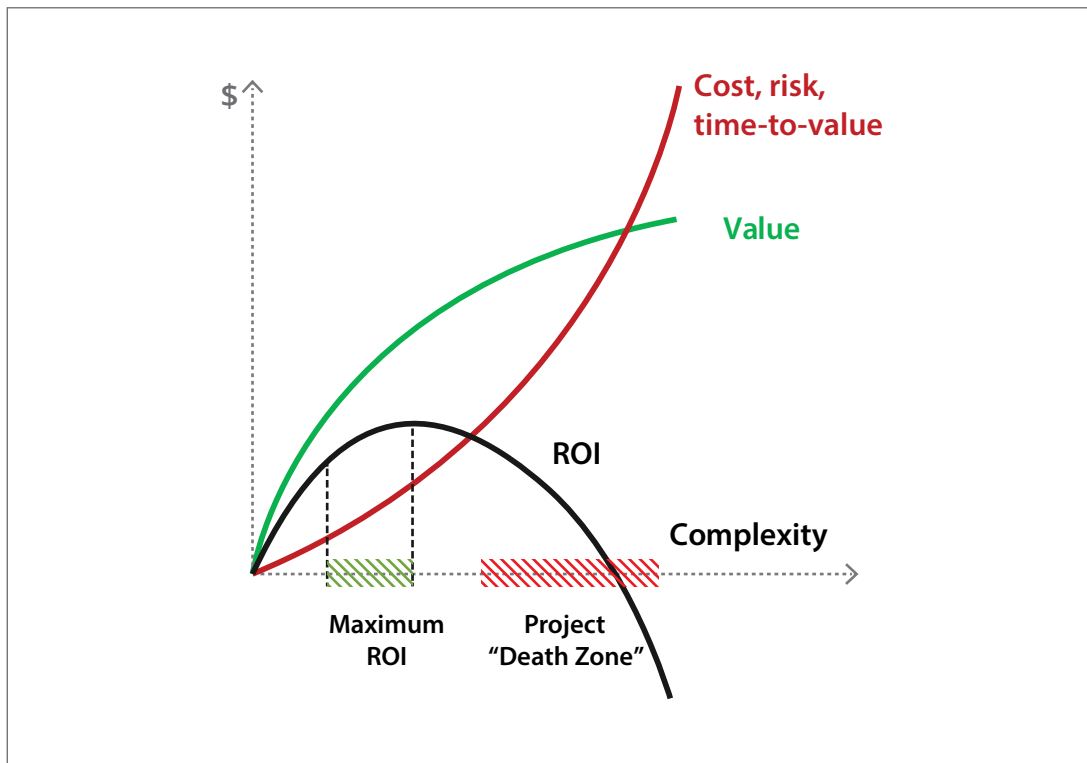
Figure 10: *The negative impact of increasing complexity on project ROI*

The trick is to aim to have projects that target the "Maximum ROI" zone. Once you end up in the "death zone" it's very difficult to come back!

From a theoretical perspective complexity is a challenge, but of course measuring complexity is tricky and measuring the cost of complexity is even harder. In practice, the 3 rules to the right should be applied to CPQ implementations (and others for that matter):

1. **Figure out in advance where the value will come from** and focus on those areas. If in doubt, phase it out.

2. **Start with the simplest implementation that adds value and expand scope once the value of that is proven.** The solution footprint needs to be big enough to add value, but not so big to tip over to the scary part of the complexity cost curve. You may need to explore more complex areas and then back down to the core with an understanding of what might come next

3. **Focus on automating high-frequency, repeatable activities.** There's a temptation to automate low-frequency high-value activities, but these are often very complex and should be addressed with care.

How Complex is Your CPQ Challenge?

Given what we've learned so far, understanding where the value comes from and balancing this with minimal complexity is critical. So how do we assess complexity in each of the three CPQ dimensions?

Figure 11 shows the key elements of what defines complexity in a CPQ process. The simple end of the scale is characterized by processes with relatively small numbers of rules that are well defined and do not change too frequently (e.g. once per year or so). Most customers and products are treated the same way. Exceptions are limited.

	Simple	Moderate	Complex
C Configure	Standard products (Pick-to-Order) Bundles	Product variants (Assemble-to-Order)	Made-to-Order Engineered-to-Order
P Price	Price List Customer Segment-Discounts/Rebates Simple StandardDiscounts/Rebates	Index Pricing Complex & Non-standard Discounts/Rebates Hierarchical Discounts/Rebates Product mix Discounts/Rebates	Complex Buying Groups Tenders
Q Quote	Standard Terms Customer Segment Terms Infrequently changing contracts	Customer Specific Terms Automated Order Integration	Dynamic Contracts Long-Complex Contracts

Figure 11: *Indicators of complexity in CPQ processes*

At the opposite end of the scale, for complex processes, the exact opposite statement can be made. And because the impact of complexity increases exponentially, you must be particularly careful when two or more of the dimensions show red: in these cases automation is generally so complex that it only makes sense if you can simplify the process.

The sweet-spot for CPQ automation is when there is some complexity, but not too much. When things are simple across all three dimensions, it's often possible to use existing systems with minor adaptation. At the very complex end of the scale, the level of complexity can make the rules impractical to code and manage without excessive cost and time.

Of course, these are not the only factors that affect complexity: scale and IT infrastructure are two others worthy of a comment.

The number of configuration, pricing and quotation decisions that need to be made is the key driver of scale. Typically, below a threshold number of decisions automation is not worth the cost to set up the system. As scale increases, automation becomes a necessity, but also the need to tightly control complexity becomes critical. Large, complex systems are exceedingly costly and time-consuming to manage.

As for IT systems, CPQ processes will inevitably expose weaknesses in how you manage data. They are unforgiving with data quality. Low complexity is indicated by accurate, granular and timely data that is easily available about products, customers and transactions. The less you can say that, the more work you will have to do to address the shortcomings.

Which parts of CPQ do you need?

The key principle to apply when deciding which processes to automate is simply to balance the potential benefits with complexity (which drives cost, risk and slows time-to-value). The benefits increase as a process has significant scale (hundreds of repeated actions or more). We can also assume that with sufficient scale of pricing decisions, pricing is a top candidate for automation given the high impact. So the remaining question is, do the "C" and "Q" processes warrant investment to automate.

Broadly speaking we can identify four approaches that make sense: Pricing Only, Configuration and Pricing, Pricing and Quoting, and full CPQ. Figure 12 shows a box for each of these along with the potential impact each can have on the four key metrics. The background of each box represents the range of associated risk/cost/time-to-value (green=low, red=high). The values were calculated from the tool used previously.
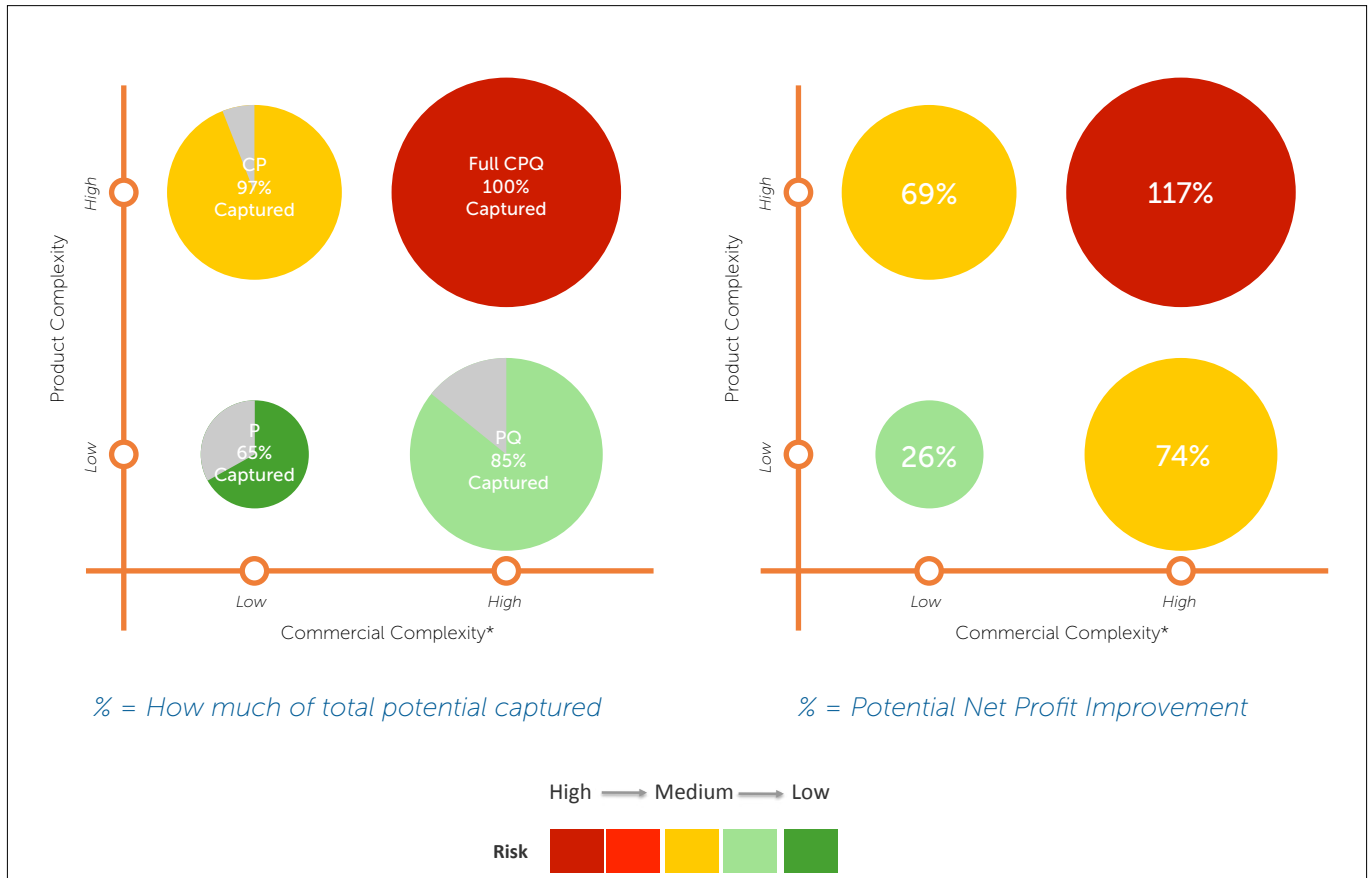

Figure 12: *Impact on key metrics of four different CPQ approaches. The axes show the level of complexity in each case. Pricing complexity is assumed as medium in all cases. The letters in each box show which of the three dimensions is addressed (so for Low Product and Commercial complexity, just the pricing process. The size of the pie chart is scaled to the size of the opportunity, with the segments showing the metrics improved in each case and the residual for processes not targeted. The background colors indicate the level of complexity, risk and time-to-value in each case.*

A few observations from Figure 12:

- As one would expect, the higher the complexity, the higher the opportunity, but also the higher the risk.

- As discussed earlier, improved quote process metrics often come from improvements in the Configuration or Pricing steps.

- Taking a targeted approach significantly reduces the project cost and risk while only slightly reducing the value captured: in the 3 cases where full CPQ is not attempted, the value capture is still 75-90% of the total.

Where you fall in this table will depend on the details of your business. If you have a heterogenous business with more products

or markets with different levels of complexity, assess each area for complexity and determine the number of decisions made in each process to develop a chart like Figure 13. This will help to determine:

- The appropriate overall approach

- Large complex businesses where the priority should be simplification

- Smaller niche business where a more manual approach may be appropriate

In the example shown, the pricing process should be the top priority with some attention also focused on configuration, which affects two significant areas.
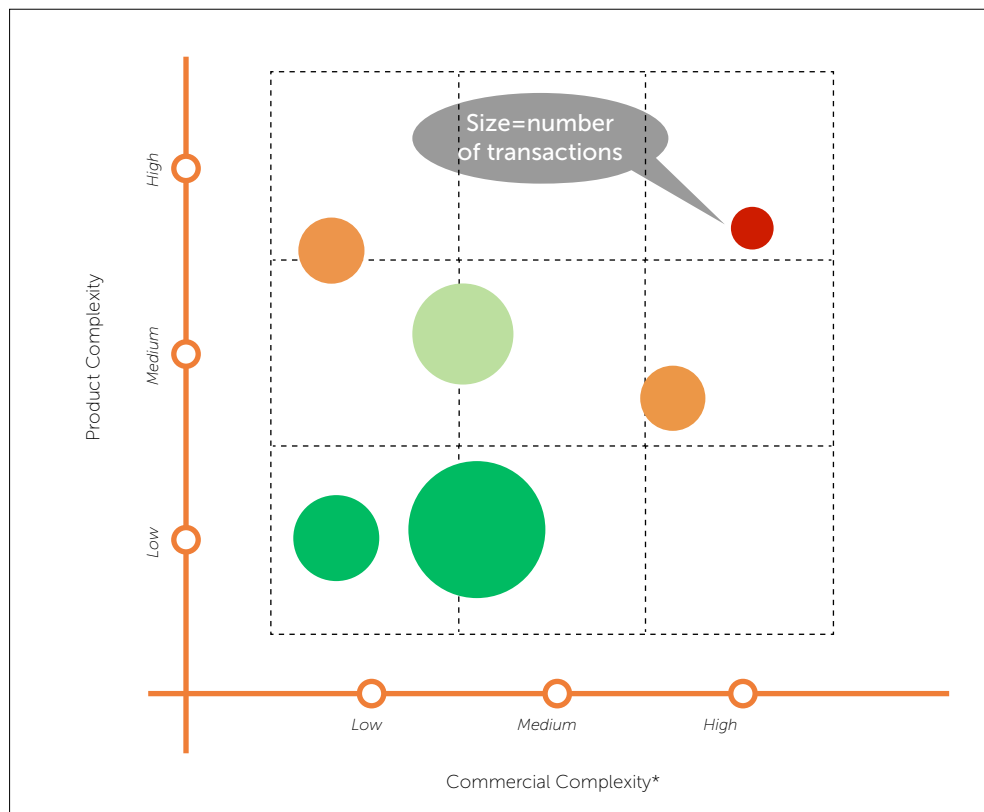

Figure 13: *Understanding the complexity of sub-businesses helps to develop and overall automation strategy. The size of each circle represents the number of decisions for that sub-business (scale)*

No matter the focus of your CPQ project, you need to follow a core set of IT project best practices, including:

- **Develop the vision.** This will be the foundation for the communications and change management activities. From the start, estimate the expected value and how it will be measured (directly or indirectly).

- Continually **build support for the project**. What problems will it address or opportunities will it realize? What's in it for each of the affected roles that make it a win for them? How will their concerns be addressed? You need to start this early and continue through launch until it is irreversibly embedded into day-to-day processes.

- **Understand and address the data challenges**. There are always problems with the data, so getting the right architecture designed and ensuring that clean data stays clean will be critical.

- **Pilot any new approaches before deploying** the final solution: prove the value and learn by doing.

- **Develop a "standard versus exception" mindset**. Standard processes are harmonized and more or less mandatory. This should be a limited set, fully automated and easy to track and report. Exceptions can be of various severities. In the extreme case, the exception is fully manual, which typically has implications for reporting and ease/granularity of analysis.

- **Think and proactively design in the level of integration.** Too much integration is expensive and brittle. Too little reduces visibility and creates manual work.

Pricing-Only Projects: Target Improving the Effectiveness of Pricing Decisions

Focusing only on pricing makes sense when the configuration and quotation processes are relatively straightforward or already streamlined. Many manufacturers selling standard products fit into this group. Not addressing Configuration and Quotation processes simplifies things, but does not mean that it is simple.

Pricing support projects should focus on addressing 4 key elements:

1. **Figuring out what the right price is for a given transaction**. For this you need to understand the value that your products and services bring versus alternatives, the level of competition, and in some cases your cost-to-serve. Concepts like value-pricing, customer segmentation and price architecture design are important and powerful. Most CPQ vendors are weak in this area, focusing more on executing prices that have been determined elsewhere.

2. **Understanding and managing the different channels to market.** Different channels will have value to customers and to you. Understanding this, your power in different channels and aligning channel incentives appropriately is very powerful.

3. **Ensuring you can execute on prices transaction-by-transaction.** For markets where customers are 'price pickers' (no negotiation on price) most of the hard work was done in Step 1. For negotiated sales, a more sophisticated approach is needed with a 'pocket price corridor' concept with proposed sales outside the corridor requiring an exception approval process.

4. **Tracking pricing performance.** This should include both the common lagging indicators of target price realization, average price trend, price versus the competition etc., but also leading indicators on the quality of the pricing process.

Configuration and Pricing Projects: Divide and Conquer

Configuration combined with pricing can make sense when there is significant complexity in the product portfolio and/or many cross- and up-selling opportunities. Made-to-Order manufacturers, companies offering large, complex bundles or products with multiple features can fit here (often Engineered-to-Order manufacturers are too complex for automation without simplification of the product). Software companies and those with a complex services offering can also fit into this category.

The good news in this case is that the configuration and pricing processes can be separated into connected but discrete projects. Tools and processes enabling Sales teams to combine products, features and services into customer-specific offers can be developed based on pre-defined rules and constraints. This can be done largely separately from the decision process on how to price those packages. The key element is to understand what the parameters are that will define the price – by no means an easy task and one that will require problem solving, analysis and testing of hypotheses. The factors will be a combination of product and customer factors.

Pricing and Quoting: Design Quoting to Support Price Capture

Pricing and quoting make sense as focuses for automation when the quoting process is complex. Think contracts with dozens or more of pages that are being amended monthly. However, the underlying offerings may not be particularly complex. Distributors with large product portfolios are an example here.

The key element is getting the pricing architecture right: which elements will Sales negotiate on and which will be fixed? This should be driven by your overall strategy and an understanding of where the flexibility of contracts adds value for the transactions. It's important to not compromise on the pricing here, since it's likely to be the key pricing driver.

The complexity of the pricing decisions will set the complexity in the quoting process. Fairly simple quoting problems can sometimes be handled in the pricing software when vendors have basic capabilities in this area. If it's only a minority of customers that have complex quoting challenges, a deal-desk approach with specialists may be the way to focus the challenge with a smaller group of experts.

Too Much Configuration Complexity:

A Case Study

Automation of processes is most practical when the activities are frequent and repeatable. For true "Engineered-To-Order (ETO)" processes this condition is often not met. What to do?

The 'traditional' CPQ answer is to deploy a solution that software solution that supports the collaboration process, providing repositories and process support for a pre-defined process. This definitely helps a complex process, but doesn't help simplify the engineering with rules.

A global manufacturer of industrial machines took a very different approach. Traditionally each machine was built to a unique customer specification in local factories. Many engineers, designers, Sales people (also engineers) and others were involved in the process of building a quote. Consequently, their cost of sale was high, the process was very slow and manually intensive, and suffered from multiple costly errors.

While their products were premium & priced with a premium price tag, there was little structure around the pricing process, with a cost-plus mindset leaving money on the table and no ability to up-sell. Furthermore, they were under attack from vendors offering pre-configured solutions at significantly lower price points.

While the company kept the core approach for the most complex 20% of their products, for the rest they shifted to manufacturing pre-configured products in China that were finished in local manufacturing plants. This approach had multiple advantages and transformed their CPQ process:

- **Configuration**: simplified process which was supported by a rules-based configuration engine. Standard options reduced costs by eliminating much ETO work (replaced by CTO).

- **Pricing**: enabled a robust pricing process to be put in place to value-price.

- **Quoting**: faster, lower-cost and higher quality quoting process. Sales teams given automated cross- and up-sell suggestions and measured on their adoption. Opened up a lower-price-point market that was previously unavailable.

This company "bit the bullet," reducing their reliance on a complex and expensive ETO business model, and shifted to a simpler CTO model that could be automated and optimized, significantly improving their bottom line.

Closing Points

Automation of CPQ processes can add significant value for many companies with complex product offerings and selling processes... if the pitfalls are avoided! A few key points to keep in mind as you evaluate how to unlock CPQ value:

- Automate only the parts of the process that have the most potential benefit. This could be one or more of the CPQ steps and/or only a part of the business

- Pricing will almost always be the process with some of the highest returns.

Make sure to take a holistic approach to pricing, including price optimization as well as price management.

- Consider simplifying as much as possible. Simplification will significantly lower the investment required, risk of failure and time-to-value.

- Don't underestimate the need for full communication and change management efforts throughout the program. Great software only pays off when it's used the right way.

Appendix: How are the benefits calculated?

The model is based on a company with the P&L as outlined in Figure 3. We assume that each element of CPQ can have 3 levels of complexity: low, medium or high, as shown in Figure 11.

CPQ automation can impact one of the seven improvements shown in Table 1. In more detail:

- For the two efficiency metrics, we assume a percentage of the time the Sales team spends on configuration or quoting activities (2-20% and 1-10% depending on process complexity) can be reduced by 50%, with the saving used to reduce the size of the Sales team since they are now more efficient.

- For the effectiveness metrics, we assume an improvement in the price (1-4%), quote win-rate (0.5-5% depending on the particular metric and complexity) and Quote size (0.5-5%).

- When considering the impact of Configure or Quote change, the impact is non-linear with complexity. The potential impact with high complexity is 5-10 times more than for simple cases. It's clear from the article that negative impact of complexity increases much faster than linear, so this makes sense.

- For pricing, the impact of complexity was taken as linear. This is because there is quite a bit of complexity in pricing even in the simplest cases in most companies.

- The logic calculates benefits by simple addition and does not consider the nonlinear benefits of improving multiple components at the same time (if the win rate is increased 10% and price are up 5%, then the real benefit would be 15.5%, not 15%). These effects can be safely ignored since they are second order, and more than offset by the increased complexity and risks.

About the Author

Ian Tidswell has led B2B pricing transformation initiatives across multiple companies and a broad range of industries including Sygenta and McKinsey & Co.Ian holds a PhD. in physics from Harvard University and a BSc. from Imperial College, London University. He is based in Basel, Switzerland.

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