The message from this study is clear: When companies pursue subscription models, they find growth. While those growth rates may fluctuate, and are susceptible to broader market trends, recurring revenue models offer sustained and predictable returns that largely avoid the volatility of traditional “boom or bust” product cycles. For business leaders hoping to avoid disruption, this message could not come at a more urgent time — more than half of the companies that appeared on the Fortune 500 list in the year 2000 have vanished as a result of mergers, acquisitions, and bankruptcies.

This study is the fourth bi-annual update of the Subscription Economy Index (SEI), and reflects three quarters of new results as the SEI shifts to a release schedule following Q2 and Q4 of each year. The SEI is based on anonymized, aggregated, system-generated activity on the Zuora service, a comprehensive platform for subscription-based businesses. This index reflects the growth metrics of hundreds of companies around the world, and spans a number of industries including SaaS, IoT, media, telecommunications, and corporate services.

The breadth and depth of the data analyzed in this study speak to the rapid ascent of the Subscription Economy. Gartner predicts that by 2020, more than 80% of software providers will have shifted to subscription-based business models. In addition, IDC predicts that by 2020, 50% of the world’s largest enterprises will see the majority of their business depend on their ability to create digitally enhanced products, services, and experiences. This is a broad, secular shift.

Recurring revenue-based business models are not new, but they have exploded in recent years owing to cloud-enabled, pay-as-you-go services. As globalization has placed increasing margin strains on manufacturing and product sales, subscription-based businesses have benefited from stable and predictable revenue projections, data-driven insights from direct consumer relationships, and large economies of scale owing to relatively small fixed costs.

This study was conducted by Zuora’s Chief Data Scientist, Carl Gold.
Overall, subscription businesses grew revenues about 5 times faster than S&P 500 company revenues and U.S. retail sales (18.1% versus 3.3% and 4.1% respectively) from January 1, 2012 to June 30, 2018.

The long-term historical average growth rate of the SEI is 18.1%. There was a modest contraction in the Average Revenue Per Account (ARPA) in Q2, while the growth in Number of Accounts surged. ARPA growth was 14.1% in the prior year, but contracted to an annualized rate of -3.2% in Q2. Account growth was 12.2% over the prior year and rose to an annualized rate of 16.4% in Q2, the fastest account growth rate since 2014.

European growth surpasses North America.

The EMEA sub-index of the SEI had at least six times the sales growth as the companies represented by the FTSE (London), CAC (Paris) and DAX (Berlin) stock indices.

The EMEA and North American sub-indices have been roughly equal since their creation dating to 2016. While North America slowed to a 15% annual growth rate in Q2, Europe raced ahead with an annualized growth rate topping 34%, the fastest quarter in a year and half. As a result of this performance, Europe is just ahead of North America with cumulative growth of 159% since the index creation, just beating North America’s performance of 158%.

IoT is now covered by the SEI, and is growing fast.

With new constituents joining the SEI every quarter, the Internet of Things (IoT) sector (e.g. connected devices, industrial manufacturing, transportation, construction) now has its own sub-index in the SEI, joining media, telecommunications, corporate services and SaaS. IoT beat the SEI average, growing at an annual rate of 25% over the 12 months ending with Q2 2018, while the main index grew 21% in the same time period.
Subscription business sales have grown substantially faster than two key public benchmarks — S&P 500 Sales and U.S. retail sales. Overall, the SEI reveals that subscription businesses grew revenues about 5.5 times faster than S&P 500 company revenues (18.1% versus 3.3%) and about 5 times faster than U.S. retail sales (18.1% versus 3.8%) from January 1, 2012 to June 30, 2017.
Recurring revenue grows through either charging subscribers more (Average Revenue Per Account (ARPA) or charging more subscribers (Accounts). The green line and the left axis show cumulative growth of the SEI in percentage terms. The gray and blue lines show the cumulative percentage changes in ARPA and Accounts respectively, both scaled on the right axis. Accounts have grown more or less continuously over the measurement period, while there have been times when ARPA growth slowed and even reversed. Inset: Recent ARPA and Account Growth. In the most recent quarter, ARPA growth reversed, while account growth continued at a robust pace.

This figure demonstrates two primary levers of growth in the Subscription Economy — ARPA and net account growth. If the total billing number of a company goes up, that means at least one of two things must have happened — either the number of accounts being billed went up, or the amount each account was billed went up.
Note that while the SEI has grown more or less continuously over the last five years, there have been periods when ARPA growth has slowed, and even reversed. There were two discrete periods when companies prioritized net account growth ahead of ARPA growth: 2012-2013, and late 2014 to mid-2015. At these times the total number of accounts grew rapidly, but revenue per account stagnated or sank.

Each of those periods was followed by a correctional phase when the net new accounts decreased, but the average revenue per account increased. Pricing in the Subscription Economy is a flexible, iterative process. Companies frequently experiment with a combination of set fees and usage-based models as they seek to “land and expand.” Strategies prioritizing net new account growth will frequently drive growth with competitive pricing, and then later “switch levers” and attempt to drive ARPA with usage-based billing and by up-selling into larger accounts.

The second quarter of 2018 appears to be the beginning of another expansion phase in which revenue per account takes a backseat to growth in the total number of accounts: ARPA growth reversed, while the number of accounts grew at an accelerated rate. Whether or not this trend continues will be a key development to watch for in the Subscription Economy throughout 2018.
The following figure shows the relative growth of different parts of the Subscription Economy through the use of sub-indices. For easy comparison of recent trends, each sub-index is shown starting from a value of 100 on January 1, 2017.

For B2B companies, growth rate is the leading indicator of a company’s success. In the software sector, for example, a company that grows less than 20% annually has a 92% chance of failure (McKinsey). Successful B2B companies must scale sales teams, add new product editions and upsell paths, pursue international markets and larger enterprise accounts, and optimize their business models by taking on usage-based pricing. Their biggest challenges include system constraints and conflicting systems of record. B2B companies had the fastest growth rate overall, but slowed slightly in Q2 of 2018.

For B2C companies, net user growth is the key metric. Successful B2C companies increase subscriber acquisition rates with rapid pricing experimentation, increase retention and ARPA by tailoring offerings based on behavioral insights and willingness to pay, and increase capture rates by taming the complexity of electronic payments. Their challenges include relatively high churn rates (owing to poor pricing and packaging decisions and fickle consumer behavior) and/or lost revenue (owing to poor payment and acquisition systems). B2C companies were a close second behind B2B in terms of growth, and they made up for lost ground against B2B in Q2.

B2Any companies sell products and services to both consumers and businesses. These companies have grown the slowest since 2017, and on average growth was flat in Q2 of 2018. This could be a result of the inherent challenges involved in selling to two markedly different sets of customers.

### GROWTH RATES BY BUSINESS MODEL

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Prior Years</td>
<td>16%</td>
<td>22%</td>
<td>13%</td>
</tr>
<tr>
<td>Last Year</td>
<td>25%</td>
<td>25%</td>
<td>13%</td>
</tr>
<tr>
<td>Last Quarter</td>
<td>18%</td>
<td>14%</td>
<td>0%</td>
</tr>
</tbody>
</table>
Which industries are thriving in the Subscription Economy? As a subscription billing and finance SaaS company based in Silicon Valley, Zuora has a significant customer base of other software vendors — both SaaS natives and on-premise vendors switching to recurring revenue models. And historically, SaaS has been one of the fastest growing sub-indices in the Subscription Economy. But since a sub-index was created for IoT companies, it seems like SaaS may have a new contender for Subscription Economy dominance! IoT just edged out SaaS over this period. In this study, we define IoT companies as OEMs (Original Equipment Manufacturers) who are taking advantage of sensors and connectivity in order to diversify their revenue mix with digital services.

GROWTH RATES BY INDUSTRY:

<table>
<thead>
<tr>
<th></th>
<th>Corporate Services</th>
<th>Telecommunications</th>
<th>SaaS</th>
<th>Media</th>
<th>IoT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior Years</td>
<td>13%</td>
<td>15%</td>
<td>25%</td>
<td>15%</td>
<td>NA</td>
</tr>
<tr>
<td>Last Year</td>
<td>11%</td>
<td>22%</td>
<td>25%</td>
<td>17%</td>
<td>28%</td>
</tr>
<tr>
<td>Last Quarter</td>
<td>8%</td>
<td>20%</td>
<td>15%</td>
<td>3%</td>
<td>18%</td>
</tr>
</tbody>
</table>

Caption: SaaS was the fastest growing sector beginning in January 2017. But once the IoT sub-index was introduced in mid-2017, this new IoT sub-index grew even faster. The only sector that did not slow down in Q2 was Telecommunications.
Size matters in the Subscription Economy. The sub-index made up of $100M+ constituents has been the highest performing since its inception in 2014, and was the fastest growing since 2017 by a large margin. In contrast to start-ups, these larger companies have more resources, more distribution, more new acquisitions, and more channels to grow. As a result, they benefit from the network effects mentioned earlier in this study. But this group of large companies slowed in Q2 — so far the smaller and more nimble companies below $100M in revenue have not broken their stride.

**GROWTH RATES BY REVENUE BAND:**

<table>
<thead>
<tr>
<th></th>
<th>&lt; $1M</th>
<th>$1M-$20M</th>
<th>$20M-$100M</th>
<th>$100M+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year Before</td>
<td>17%</td>
<td>13%</td>
<td>17%</td>
<td>28%</td>
</tr>
<tr>
<td>Prior Year</td>
<td>17%</td>
<td>21%</td>
<td>20%</td>
<td>25%</td>
</tr>
<tr>
<td>Last Quarter</td>
<td>14%</td>
<td>16%</td>
<td>17%</td>
<td>12%</td>
</tr>
</tbody>
</table>
SUBSCRIPTION CHURN RATES BY BUSINESS MODEL, INDUSTRY, COMPANY SIZE, AND REGION

Caption: Comparison of average annualized churn rates from the SEI subindices for the last year and the long-term average over prior years. Overall, churn has decreased in the past year, particularly for Consumer subscription products (B2C) and Media companies (both of which have seen higher average churn rates over the long run.) A: Business Model Sub-Index. B: Industries Sub-Index. C: Revenue Band Sub-Index. D: Region Sub-Index. Among the churns in each category, it is highest for B2C, Corporate Services (with Media a close second), $1M-$20M, and in EMEA.
At its most basic level, churn refers to the proportion of total subscribers who leave during a given time period. Churn can result from any number of reasons: weak customer service, a poorly upgraded product, a better offer from the competition, business failure, etc.

In order for revenue to recur, customers must renew at a rate that outpaces churn, which can effectively determine the size of a company. Therefore, reducing churn by investing in high-quality services, sticky features, and customer success is fundamental to every subscription-based business strategy.

In addition, reducing churn rates is an imperative not only because of the initial lost revenue, but because of cohort opportunity costs — successful accounts grow larger over time. Unsurprisingly, churn rates are higher for B2C and lower for B2B. Digital B2C companies (including Media) have large numbers of individual users who frequently churn due to payment challenges, credit card issues, lapsed interest, or competition. B2B companies (which in the SEI is weighted more heavily towards software) benefit as their solutions become more embedded into stable, growing corporate accounts.

Average annual churn rates in the SEI are generally between 20 and 30 percent. Among the business models, churn is highest for B2C and lowest for B2B companies. For industries, churn is highest in Media and lowest in SaaS. Over the past year, churn has fallen overall, particularly for B2C and Corporate Services companies.
Caption: The figure shows the relative growth in recurring revenue for the EMEA Sub-Index of the SEI (Dark Blue) and the North America Sub-Index of the SEI (Green), starting from a base value of 100 at the end of Q1 2016. In each quarter, the index is increased by the same percentage as the percentage growth in each region. North American growth started high and slowed somewhat over the course of the last four quarters, while EMEA growth was initially slow but completely closed the gap in the last two quarters. Also shown are the cumulative growth in sales per share for companies of the major European stock market indices: The FTSE index (Financial Times Stock Exchange), the CAC 40 (Cotation Assistée en Continu; France) Index and the DAX index (Deutscher Aktienindex; Germany). The EMEA index had about six times the sales growth as the FTSE and CAC, while the DAX sales growth is still not fully recovered from a contraction in 2016.
The Subscription Economy Index includes an EMEA sub-index with history dating back to Q1 2016. Since then, the EMEA and North America indices grew almost exactly the same amount: Since April 2016, EMEA grew a cumulative 59.7% (annual rate of 23.1%), just beating North America with 58.3% cumulative growth (22.6% annual rate). However, growth in the EMEA index has been less consistent, starting slowly in Q2 2016 and having a surprise jump in Q1 2017 and then another slowing in late 2017. Q2 of 2018 was the most recent surge for EMEA, at the same time as North America was slowing. But the EMEA index contains around one fifth the number of constituents of the North American index so this variation probably just reflects noise due to the small sample size — overall it appears that EMEA and North American companies in the Subscription Economy grow at about the same rate.

In short, the Subscription Economy in Europe is clearly on the ascent. Over the past 27 months, European subscription companies (a new SEI category) have even bested their American counterparts’ growth rate of around 22%. This is remarkable because European economic growth rates overall have lagged behind North American growth rates for much of the past decade.
While Subscription Economy businesses are not guaranteed to succeed, companies with recurring revenue models tend to enjoy growth rates higher than the rest of the sector, enabled in part by the ability to extend average customer lifetimes, maximizing ARPA and net account growth, while minimizing churn rates and taking advantage of usage-based billing.
Introduction
The Subscription Economy Index (SEI) measures the growth in the volume of business for subscription based products and services. The SEI is based on anonymized, aggregated, system-generated activity on the Zuora billing service, and is intended to be indicative of the direction of the subscription economy as a whole. The SEI includes not only the main index but also set of explanatory metrics that provide insight into the sources of growth (Growth Factors), as well as specialized indices focusing on particular business segments (Sub-Indices).

The index itself is an indicator that increases (or decreases) at the same percentage rate as the average volume of activity observed in tenants on the Zuora service. Such tenants are known as constituents of the index, for reasons that will be made clear below. Like many financial and economic indicators, the precise value of the index is nominal and defined by convention. In particular, the SEI is defined to have a value of 100 on the historical date January 1st, 2012. After that time, each percentage change in the index corresponds to the same percentage change in the activity volume of an average constituent. So when the index climbed from 100 to 105, it means that on average the constituents of the SEI had increased their activity volume by 5% over that time. When the index later climbs from 110 to 115, that corresponds to only 115/110 = 4.5% growth.

The SEI as a Measure of Organic Growth
As will be described in detail below, the SEI is designed so that it measures the organic growth of the constituents in the index and not the growth in the number of constituents. At its simplest, that means that the addition of constituents to the SEI does not make it go up, in and of itself. Because the index grows at a rate that is the weighted average of the growth rates of the constituents, adding constituents to the SEI only dilutes the weight assigned to all the other constituents. For that reason, adding constituents only makes the index go up if the new constituents growth rates are higher than the average growth rate of the pre-existing cohort. Similarly, when constituents leave the SEI that does not necessarily cause the index to go down. A constituents leaving the pool may be associated with contraction in that constituent prior to departure if the tenant leaves the Zuora service due to business failure at the owner company, but that is not necessarily the case.

The SEI also removes the impact of non-organic growth in the system activity. Non-organic growth, for these purposes, means any increase in the activity in the Zuora service that is not reflective of the changes in the underlying fundamentals of the company owning the tenant in question. The most common cases of non-organic changes in activity are account migration from another billing system to the Zuora service and voluntary decommissioning of a tenant by a company that was using the billing service. In contrast, declines in activity resulting from business failure remain part of the index calculation. These issues will be described in more detail below.

Criteria for Index Constituents
Borrowing a term from stock market indices, a tenant on the Zuora service that produces activity used for calculating the SEI is referred to as an index constituent. Not every tenant on the Zuora billing system will be an index constituent at any given time. The criteria for inclusion is simply a minimum length of time that a tenant must have been live on the Zuora billing system: The main purpose of this minimum is removing the effect of non-organic activity growth from the index calculation, as described above. Other considerations are removal of seasonality, and ignoring high rates of activity growth from insignificant base values. As described below, most companies using the Zuora billing service become index constituents after approximately two years live on the system. A total of 353 constituents met the criteria and were used to calculate the SEI when it was first released in 2016.

Burn-In Period
In order to remove the effect of account migration from other billing systems, a minimum burn in period of one year is applied to every tenant on the Zuora billing system. That means that the first year of system activity for a constituent is simply ignored and never used as part of any calculation. The one year burn-in period also removes whatever growth comes immediately after a new company launch, when Zuora is the original billing system for a new product. This is sensible because high growth rates measuring growth from an insignificant base level are usually not sustainable in the long run. The burn-in period for a constituent may be longer than one year whenever there is known or suspected to be significant account migration from other systems even after this time. Note however that Zuora does not have perfect information about these events, and some migration of accounts from another billing platform may not be excluded (however, any extreme outliers will be removed as an outlier, as described below.)

Calculation Period
As will be described in more detail below, revenue for the SEI is measured in a one year rolling window. The purpose of the one year window is to remove the impact of seasonality. After the burn-in period, the next year of system activity for a constituent is used to establish the baseline for the measurement of future growth. As a result, a typical tenant using the Zuora service is first used as an index constituent when their one quarter growth
is calculated two years and one quarter after they went live on Zuora system.

**Removal of Index Constituents**

Decommissioning of tenants and the causes are tracked in the Zuora CRM system. System activity for a tenant is suspended from the SEI calculation beginning in whatever quarter their decommissioning is noted, and whenever the reason is other than business failure. Business failure decommissionings are allowed to remain in the SEI throughout the decommissioning as this reflects organic contraction on the tenant activity, while voluntarily decommissioning tenants are removed as that is a case of non-organic change in the activity. Note that this may fail to exclude migration of accounts from the Zuora system that preceded the acknowledgment of decommissioning; such migration off the Zuora system would appear as negative growth and may influence the SEI calculation (however, any extreme points will be removed as an outlier, as described below.)

**Post-Live Invoice Conversion**

Usually the migration of accounts and invoices from another billing system to Zuora occurs before or immediately after a tenant goes live on the platform. Occasionally a company converts accounts and invoices to the system at a later date. Whenever such a conversion is known to occur, the corresponding quarter(s) of system activity will be removed from the SEI calculation for those companies. The data points for those companies will be filled as necessary with the average of the quarters before and after the conversion. Note that Zuora does not always have complete information about these events and it possible that some post-live revenue conversion may go into the index calculation and would appear as growth (however, any extreme points will be removed as an outlier, as described below.)

**Multi-Tenant and Multi-Entity**

In cases where a single parent company operates either multiple entities or multiple tenants in the Zuora system, the system activity for each entity or tenant is treated as if it were a separate constituent for purposes of SEI calculations including burn-in, calculation and churn. A separate tenant is the specific case of multiple entities operating with fully separate product catalogues, databases etc. The base date for beginning the burn in period on a tenant or child entity is the later of the customer go-live date and the earliest date for which system activity for the tenant or entity is first processed.

**Calculating Constituent Growth**

Once a tenant on the Zuora service becomes an index constituent its activity is calculated every quarter with a one year rolling window. Many subscription businesses’ activity are subject to seasonality, although the precise nature of the seasonal effect varies significantly. Using a one year window for SEI calculations removes the effect of seasonality. This means that if the SEI increases (or decreases) over any quarter it is because that quarter was better (or worse) than the same quarter one year prior; not the quarter immediately preceding it.

The activity measure for SEI calculation is the one year prior total of Invoice Item amounts generated from recurring and usage Rate Plan Charge objects in the Zuora object model database. One time charges are excluded from the calculation, as the SEI is intended to reflect the growth in recurring activity. Whether Invoice Items are for recurring, usage or one time activity is given by the Rate Plan Charge object linked to the Invoice Items in the model. Note also that any activity a constituent makes that is outside the Zuora system is ignored by the SEI calculation. A consequence of this is that in cases where a division of a large corporation uses Zuora for a single product line then that constituent is treated as if it were a small company, independent of the larger organization.

Once the activity of a tenant in the SEI has been calculated, the growth calculation for the SEI is the quarterly change in the one year trailing activity expressed as a percentage. That is, the quarterly growth for a constituent is calculated as:

\[
G^Q_{\text{constituent}} = \frac{A^Q_{\text{constituent}}}{A^{Q-1}_{\text{constituent}}} - 1
\]

where \(A^Q_{\text{constituent}}\) represents the one year trailing activity ending with the quarter denoted \(Q\) and \(A^{Q-1}_{\text{constituent}}\) is the same but for the year ending with the prior quarter.

**Average Growth and Updating the Index**

The increase/decrease of the SEI over any period in time is the average of the growth in activity for constituents who make up the SEI at that time. However, the average growth used is not the simple average (or mean) – rather it is amount weighted average, subject to certain constraints.

**Outlier Removal**

The first step taken in calculating the average is to remove outliers, those constituents in the SEI having the largest increases or decreases in activity for each quarter. Outliers are defined as the top and bottom 5% of companies in the SEI. The actual number to remove is rounded up to the nearest whole number, so for example if there were 100 constituents in the index then the top and bottom 5 companies are removed, but if there are 101 in the index then the top and bottom 6 companies would be removed. Removing outliers serves two purposes: First, the movement of the SEI is meant to represent what happens to typical constituents in the SEI. However, averages can be unduly influenced by the presence of very large values. Also, as noted above, the SEI calculation does not contain perfect information about non-organic changes in activity (e.g. conversions, decommissioning of tenants voluntary churn, etc.) Removing outliers helps to insure that even if such companies’ system activity remains in the SEI and do in fact do have extreme changes in their activity, then those changes will not influence the index.
Weighting by Volume of Activity

In addition to reflecting what happens to a “typical” constituent, the SEI is meant to reflect the amount of growth in the overall Subscription Economy outside of the Zuora service and the opportunities that are available to creators of and investors in Subscription Economy companies. For this reason, the weighted average used in the SEI growth calculation is weighted by the total amount of activity each tenant has, so that companies with higher activity take more weight in the average. (Note the weighting is by the baseline amount of activity for each constituent, but not the growth in activity that is being averaged.) This is similar to the way that stock market indices are weighted by the market capitalization of their constituents and for the same reason: the indices are meant to represent the overall size of the market and the opportunity available to investors, so it is weighted more towards larger entities.

However, complete reliance on amount weighting may fail to reflect what is typical if a few very large constituents dominate the activity measured by the SEI. For this reason the weight of any single constituent in the weighted average is limited to 5% of the total. In case any constituent would take more than 5% of the average weight in the SEI (or an SEI sub-index) based on their total amount of activity, then that weight is capped at 5% and the remaining weight is distributed proportionally to the other constituents in the pool; the process is iterated until all constituent weights are at or below 5%.

Minimum Number of Constituents

Taken together, the outlier removal and weighting method determine the minimum number of constituents for calculating the SEI or any sub-index of the SEI (for which the same rules apply.) Capping weights at 5% implies there must be no less than twenty constituents. However, the twenty constituents must be available after outlier rejection, described above. The number of constituents to remove for the top and bottom 5 percentiles is rounded up to the nearest whole number, so that for more than twenty constituents the two highest and two lowest activity growth numbers are removed from the average. This means the minimum possible number of constituents to calculate the SEI or one of its sub-indices according to these rules is twenty four, and the SEI uses a minimum of twenty five for simplicity.

Index Update

Given the growth of all constituents over the prior quarter and the weights to use in the average, the average growth is simply the sum of all the constituents’ growth rates multiplied by their weight (note that all the weights add up to one, so this is a proper weighted average.) One plus the average growth rate is then multiplied by the prior index level to arrive at the new index level. That is,

$$SEI^Q = SEI^{Q-1} \times (1 + G^Q)$$

where $SEI^Q$ is the new index level, $SEI^{Q-1}$ is the index level after the last quarterly update, and $G^Q$ is the average constituent growth over the most recent quarter.

Growth Factors

The SEI measures the amount of growth in the Subscription Economy, but a single indicator does not give insight into what is driving it. A related set of metrics help to explain the sources of that growth. These metrics are called the Growth Factors of the SEI. Like the percentage change in activity used in the SEI calculation, the Growth Factors are averages of percentage changes in other activity based measurements. Unlike the SEI, the Growth Factors are not used to update an index – they are simply provided as explanatory information each quarter. The growth factors use a simple two step decomposition to explain why the SEI went up (or down) in any given quarter.

ARPA and Net Account Growth

If the total amount of a company’s activity go up, that means at least one of two things must have happened: Either the number of accounts generating the activity went up, or the amount of activity for existing accounts went up. The total of Invoice Item amounts is analogous to the accounting measure of revenue, so it is referred to using the accounting term Average Revenue Per Account or ARPA. This is the first level of the SEI Growth Factor decomposition: overall activity growth is decomposed into growth in ARPA and growth in the number of accounts. The latter is referred to as Net Account Growth, to distinguish it from specifically new (added) accounts. Changes in ARPA are closely related to upsells and downsells: If ARPA is growing, then upsells and price increase must be outweighing downsells and discounts.

To calculate the growth factors for ARPA and Net Account growth, the number of accounts with activity in the past year is measured on each quarter end date for all the constituents. ARPA is calculated simply as annual activity divided by the number of accounts. Next, the quarterly percent changes in ARPA and the number of accounts is calculated for all constituents (similar to the calculation for quarterly percent change in overall annual activity, described above.) Finally, the averages of ARPA growth and Net Account Growth are calculated using the same weights as the SEI (overall activity weighting, subject to constraint.) These averages are the Growth Factors for ARPA and Net Account Growth. When combined with the SEI change for any time period, these show whether SEI growth (or declines) was driven by increases/decreases in activity on existing accounts or by changes in the overall number of accounts, or both.

Note that for a single tenant in the SEI the following relationship holds exactly:

$$(1 + G^Q_{ARPA}) = (1 + G^Q_{ARPA}) \times (1 + G^Q_{\#of Accounts})$$

where $G$ indicates the percentage growth of the measurement indicated for some quarter. Also, for low levels of growth it is approximately true that:

$$G^Q_{ARPA} \approx G^Q_{\#of Accounts}$$

Meaning, when the growth is small the total growth is close to the
sum of the two components. However, the SEI growth factors are averages over many constituents and the multiplicative relationship shown above will only be approximately correct. This is because an average of a product of two sets of measurements is not the same as the product of the averages of the same two sets of measurements — the relationship is nonlinear. The additive relationship is even less accurate for the Growth Factors, as it involves one more level of approximation. So the growth of the SEI is not simply the sum of the ARPA and Net Account Growth Factors, though it will often be close. And comparing these two Growth Factors still gives a powerful explanation into what caused the SEI to grow in any given quarter.

Account Growth and Churn

The net change in the number of accounts can be further decomposed into two components: addition of new accounts, and loss or churn of existing accounts. These additional growth factors provide insight into what is driving net changes in the number of accounts. This extra level of decomposition is important because new account additions and losses to churn are driven by two different processes: New additions are the result of marketing and sales efforts; while churns are driven by satisfaction/dissatisfaction of the existing customer base.

Companies calculate growth and churn of accounts in many different ways. The SEI growth factors use a simple calculation that makes results comparable across the wide variety of companies in the SEI, and is consistent with the calculation of the SEI main index and the other Growth Factors. The definition are as follows:

1. New account additions are defined as any account that had activity in the last quarter, but had no activity the prior year (the prior four quarters.)
2. The Account Growth rate is defined as the number of new accounts added in a quarter divided by the number of accounts at the start of the quarter.
3. Churns are defined as an account that has had no activity in the last year (4 quarters), but last had activity in the quarter prior to that. To explain churn another way, suppose an account had activity in Q2 some year; if Q2 of the next year passes and the account has not had activity again at all in that year, then the account is considered a churn at in Q3 (up to one year and one quarter after the last activity.)
4. The churn rate is defined as the number of churns in a quarter divided by the number of accounts at the start of the quarter.

Many companies use different definitions for these metrics, and those choices are often made based on the typical customer lifespan, re-signup behavior etc. Naturally, any definition applied to a diverse pool of companies will not be perfectly suited to every type of tenant in the zuora service. The SEI definitions were chosen to remove the effects of seasonality and for consistency with the annual activity calculations used by the SEI.

Relationship to Revenue based Retention

Many subscription companies report revenue based retention and churn, and it is also common to include the impact of upsells in this metric. This is useful because this one metric captures much about the health of the existing customer base. To calculate an amount that is analogous to revenue based retention including upsells from the SEI Growth Factors start by noting that account based retention is simply 100% minus account based churn. So the SEI analog to revenue based retention including upsells is calculated by multiplying the account based retention by one plus ARPA growth. That is:

\[ R = (1.0 - C) \times (1 + G_{ARPA}) \]

where \( C \) is the churn rate and \( G_{ARPA} \) is the ARPA growth rate as described above.

Sub-Indices

In addition to providing insight about the direction of the Subscription Economy overall, it is useful to know about the differences between various categories of companies. To support this, the SEI method is also applied to specific subsets of the constituents. Borrowing terminology from stock market indices these constituent groups and their associated measurements are known as sub-indices. Once the classifying criteria for a sub-index are defined, the same methodology is applied to that pool of constituents as is used for the main SEI. The only requirement for creating an SEI sub-index is that the category must have to the minimum number of 25 constituents, as described above.

A variety of classifications are used to define sub-indices. Examples include the Business Model, Industry, Vertical, and Revenue Band. Additional classifications may be applied in the future, or combinations of classifications. These classifications are provided by the data vendor Inside View and applied to the billings system measurements via Zuora’s CRM system.