Applying Earned Benefit Management[1]

Realizing the Benefits[2]

Earned Benefit tells you how much, but you need to know when!

By Crispin ("Kik") Piney, PgMP, PfMP

This article builds on all of the ideas described so far in this series, to provide an innovative and powerful tool for forecasting, optimizing and tracking the actual business performance of programs and their contribution to benefits realization over time.

Introduction: Link to the Previous Article

Earlier articles in this series [Piney 2018b, Piney 2018c, Piney 2018d, Piney 2018e] explained how to apply cost and benefit evaluation algorithms to a representative case study. [Piney 2018b] revealed that one of the component projects would cost more than it contributed to the overall benefits. The previous article in this series [Piney 2018e] analyzed this situation in detail based the concept of essential links and demonstrated the problems that can be caused by taking a simplistic approach to addressing this type of issue.

The current article brings all of these ideas together and adds in the effect on the benefits realization schedule of any lags between successive nodes in the Benefits Realization Map. These lags correspond to the delays that can occur between the availability of a capability and its effect on creating the corresponding outcome, or between an outcome and the full realization of the corresponding benefit.

In order to allow this article to be understood independently of the earlier ones in the series, some reminders and one clarification are provided below, plus an overview of the case study, prior to addressing the current topic of time-factored benefits realization forecasting and analysis.

[1] This series is by Crispin "Kik" Piney, author of the book Earned Benefit Program Management, Aligning, Realizing and Sustaining Strategy, published by CRC Press in 2018. Merging treatment of program management, benefits realization management and earned value management, Kik's book breaks important new ground in the program/project management field. In this series of articles, Kik introduces some earned benefit management concepts in simple and practical terms.

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Reminder on Benefits Realization Maps

A Benefits Realization Map (BRM) illustrates how to make the benefits happen. The BRM for the case study is shown in Figure 1.

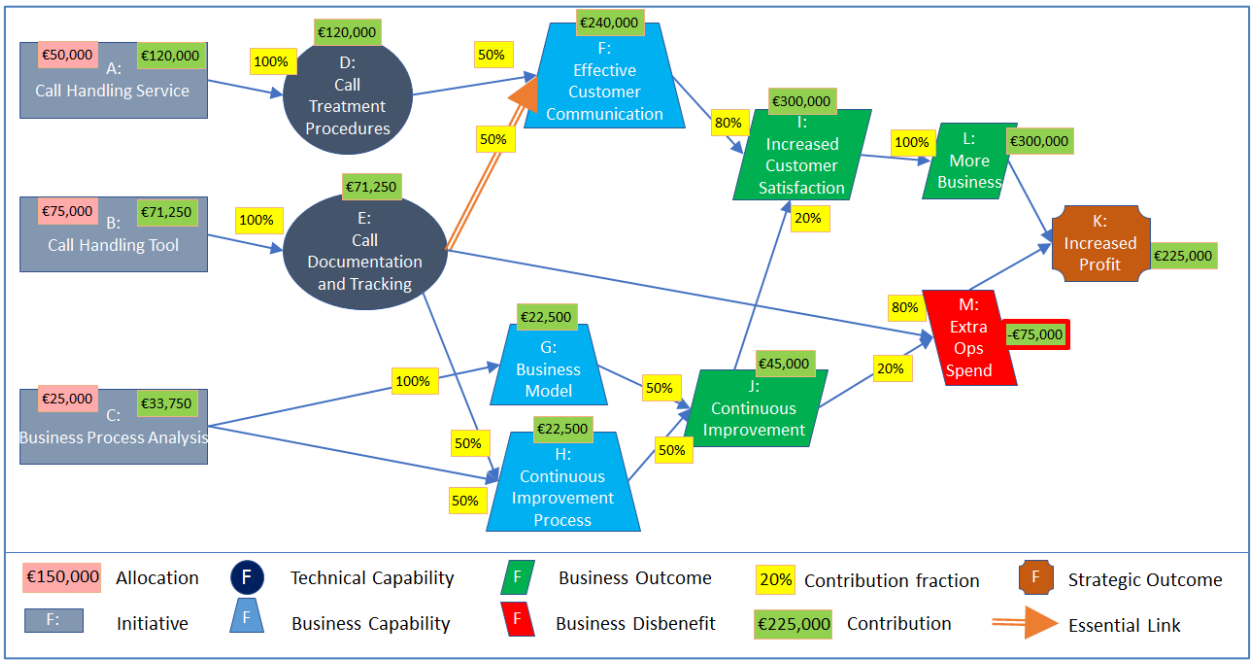

Figure 1: Complete Benefits Map

BRMs can be developed as follows:

Top-Down Decomposition

Once the anticipated benefits have been defined by the strategic sponsor, you need to determine all of the steps that are required for delivering this result, as well as their interdependencies, thereby allowing you to identify the necessary component projects ("initiatives"). The links from each logical step to the next are quantified based on their relative importance for delivering the benefits (the "contribution fraction" for the link).

The Benefits Allotment Routine (BAR) uses the forecast benefit value of the strategic objectives in conjunction with the link information to calculate the contribution to the anticipated benefits of every node in the BRM. In particular, the BAR provides the contribution to the anticipated benefits of each component project. This value is known as the "Earned Benefit At Completion" (EBAC) of that component project.

One additional link characteristic concerns "essential links". An essential link is a link from a node that is an absolute prerequisite to the destination node. Removal of the corresponding source node would cause the destination node to disappear even if there are other contributing nodes. To model the potential unavailability of an essential node, the Pruning and Link Evaluation (PALE) algorithm provides the mechanism for removing all relevant nodes and rebuilding the corresponding benefits map from what remains of the original BRM after node removal.

Because of the way the BRM is drawn with the strategic outcome on the right, this top-down approach is also characterized as "right-to-left".

Similarly, the bottom-up approach is also known as "left-to-right".

Bottom-Up Evaluation

Once the full set of parameters that define the model are known (predicted benefits, estimated cost per initiative, and the structure of the benefits map including the links and their contribution fractions), no additional assumptions on the model are required in order to evaluate to cost of each intermediate node in the model. The Break Even Everywhere Routine (the BEER) provides the additional link parameters (the "allocation fractions") required for calculating the corresponding cost of each node based on the cost of the initiatives. The return on investment of any node can then be evaluated from its benefit contribution and its cost allocation.

Due to the way in which the BEER was specified, the allocation fractions provide the means for distributing not only costs but also other quantities (such as node Earned Benefit) across the map from the initiatives (on the left in the BRM) towards the strategic outcomes (on the right). This feature is fundamental for the current article.

Reminder on Earned Benefit

The Earned Benefit of a component project at a given point in time is evaluated from its EBAC in proportion to its degree of completion at that point (i.e., to its Earned Value "Percent Complete"). This is known as the "proportional transfer convention". In an earlier article [Piney 2018c], the Earned Benefit of the total program was defined as the sum of all of the project Earned Benefits. The conclusion of the previous article [Piney 2018e] suggested that, at least in some cases, this approach for calculating the program Earned Benefit was incomplete because it does not address the potential existence of essential links in the model. The solution to this problem requires the additional techniques that will be developed in the current article.

Clarification

I received the following comment on an earlier article (Piney, 2018c) and promised in the previous article [Piney, 2018e] to complete my earlier explanations.

> "How can you claim to measure benefits when the project has yet to be completed? […] Asked another way, how can Activity A produce any measurable benefits until Activities C and D are also finished and the services actually implemented?"

The current article will provide the final elements of the answer to this question and apply the approach to the case study.

The Case Study for the Current Article

The business objective of the program in this example is to increase profits for an organization in the area of customer service. The premise of the case study in that strategic analysis by senior management has shown that increased customer satisfaction with after-sales support enhances business results and has the potential for delivering additional revenue of €300,000 per annum compared with the current level of business, but that this service will also lead to an increase in operational costs amounting to 25% of the corresponding financial improvement, thereby reducing the net benefit by that amount.

In the previous articles, the steps to achieving the business objective were developed and quantified, all the way back from the required strategic outcome across to identifying the required projects. The corresponding BRM for this program, including the financial numbers mentioned above, is shown in Figure 1. One notable point about this case study is that, although the overall figures show a healthy return on investment, one component project (B= *Call Handling Tool*) costs more to the program than it contributes to the final benefit. However, the previous article applied the concept of essential links to explain why its inclusion is both required and fully justified.

After these reminders, we are now in a position to move forward and apply the techniques.

Earned Benefit and Essential Links

By definition, the value of the destination node of an essential link depends on the existence of the source node. In order to extend this concept for the case where the source node is partially complete, the "Algorithm for Link Evaluation" (ALE) has been defined as follows: for the destination node, the potential contributions of all non-essential source nodes are reduced in direct proportion to the degree of completeness of the essential node. This ensures that, while the source node is 0% complete, the destination node cannot benefit from any other contributions, and once the essential source is completely available, the "essential" character of the link can be ignored. At intermedialte degrees of completion of the source node between 0% and 100% of its total forecast benefit, the ALE has the effect of scaling down the non-essential source contributions in line with the essential source. This rule can therefore be used to calculate Earned Benefit as explained below. It will then be applied in a similar way for forecasting the schedule of actual benefit realization.

From Earned Value to Earned Benefit to Scheduled Benefit

In [Piney 2018c], program Earned Benefit was specified as the sum of the Earned Benefit of the component projects. It was mentioned that this was an incomplete approach. This is because simple summation of the component benefits does not work for a destination with multiple sources, of which one is essential. In this case, until the essential source is complete, the cumulative contribution from the other sources cannot be totally transferred to this destination. The Earned Benefit has therefore to be evaluated by applying the ALE progressively, one node at a time, moving outward from the known Earned Benefit of the initiatives (EB = EBAC x PC). To carry out these left-to-right calculations, the allocation fractions calculated by the BEER can be used to distribute the node Earned Benefits across the model from source (i.e., the left) to destination. The allocation fraction defines the percentage of the source contribution that should be transferred down the corresponding link. For example, Figure 2 shows that 33% of the benefit contribution of C=*Business Process Analysis* goes towards H=*Continuous Improvement Process* which also benefits from 16% of E=*Call Documentation and Tracking.*

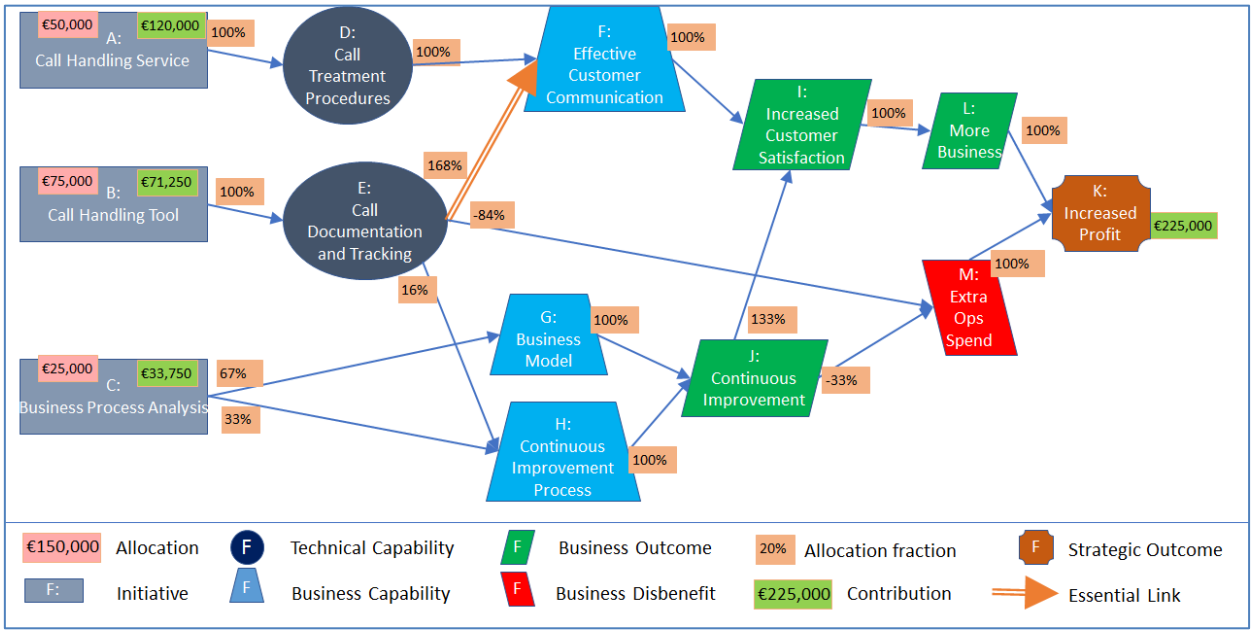

Figure 2: The Allocation Fractions Calculated using the BEER

In this way, the combination of the BEER and the ALE allows you to take essential links into account when calculating the program Earned Benefit: once you know the Earned Benefit of the component projects at a given point in time (as mentioned earlier, this is calculated as the product of the initiative's EBAC by its percent complete), the allocation fractions – plus the ALE – allow you to calculate the Earned Benefit contribution of each node in the model in turn, and therefore the Earned Benefit of the program at that date. Exactly the same technique can be used for calculating Planned Benefit at intermediate dates, to allow forecasting and implementation performance management.

As an example, we will take the roadmap shown in Figure 3 and calculate the Planned Benefit at the end of January.

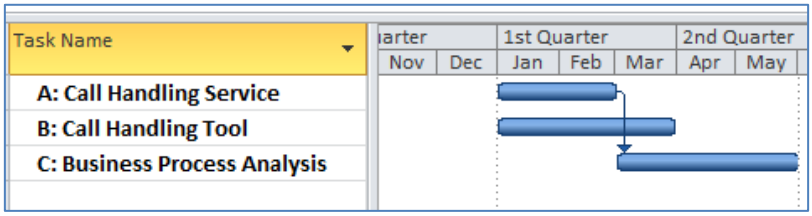

Figure 3: Program Roadmap for the Current Example

At the end of January, as shown in Figure 3, planned percent complete of A=*Call Handling Service* is 50%; it is 33% for B=*Call Handling Tool*, and 0% for C=*Business Process Analysis*.

The simplistic approach of summing the Planned Benefit from the initiatives would give:

- Planned Benefit of A = 50% x €120,000 = €60,000
- Planned Benefit of B = 33% x €71,250 = €23,750
- Planned Benefit of C = €0

Simple summation gives Planned Benefit at end of January = €83,750

However, applying the BEER + ALE and using the allocation fractions shown in Figure 2, the Planned Benefit comes out at €43,750.

This is because node F=*Effective Customer Communication* would contribute €99,900 if link E to F were not essential, but only contributes €59,900 due to the effect of the essential link because essential node E is only 33% complete, thereby reducing the effective contribution of A in the same ratio – i.e., from €60,000 to €20,000.

In the extreme situation analyzed in the previous article [Piney 2018e] – i.e., where nodes A=*Call Handling Service* and C=*Business Process Analysis* are 100% complete but that we have decided not to carry out B=*Call Handling*, the Earned Benefit calculation just described gives, as expected, the same result as shown in [Piney 2018e] of applying the Pruning and Link Evaluation (PALE) algorithm – i.e., the total benefit only reaches €33,750.

As can be seen, incomplete essential nodes can have a significant impact for Earned Benefit calculations and, by extension therefore, on integrated program performance management.

Another situation in which the partial contributions need to be distributed across the map from left to right in a similar manner is explained next.

Scheduled Benefit and Benefit Realization Cash-Flow Analysis

As just explained, the Earned Benefit concept extends the Earned Value approach from project performance measurement to programs. In this way, Earned Benefit measures the *potential* contribution of the work completed.

However, in contrast with the Earned Value model, the Earned Benefit paradigm can be applied beyond the end of the implementation phase, to forecast the realized benefit, thereby

providing an analysis of the full-lifecycle cash flow expected for the program and allowing ongoing performance management.

This forecasting requires additional schedule-related information. We need to extend the program roadmap beyond the completion of the initiatives, to include, in addition to the planned dates for the initiatives, the lag time associated with each link in the BRM – for example, the delay between *creating* an outcome and actually *realizing* the resulting benefit.

For the case study, lags have been identified on three of the links:

- D=*Call Treatment Procedures* takes 1 month to build up to contributing to F=*Effective Customer Communication*;
- F=*Effective Customer Communication* then takes another month before it affects I=*Increased Customer Satisfaction*;
- J=*Continuous Improvement* takes 2 months before its effects are seen on I=*Increased Customer Satisfaction.*

Using a simple scheduling technique, these lags have been taken into account along with the roadmap for the initiatives in Figure 3, and the effective realization date for each node has been evaluated. The BRM in Figure 2 has been updated accordingly as shown in Figure 4.

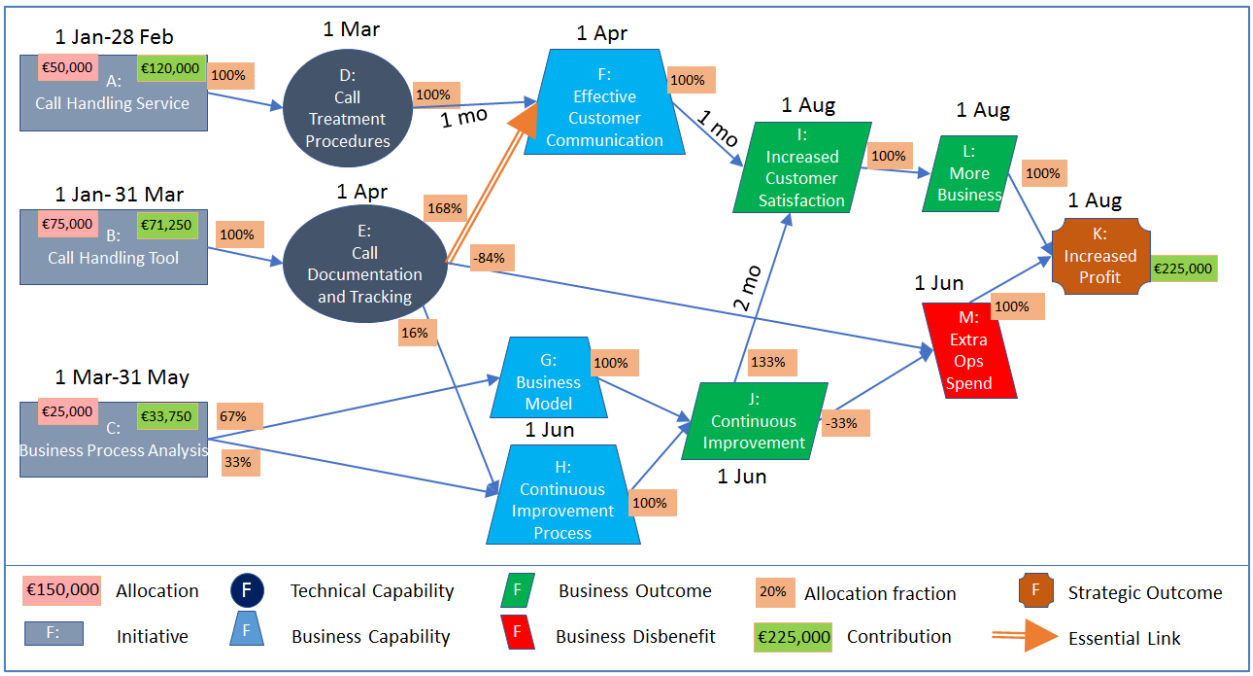

Figure 4: Case Study BRM Indicating Project Dates, Lags, and Benefits Realization Dates

From Figure 4, it can be seen that, although program implementation is scheduled to be complete at the end of May, the forecast benefit itself – the annual profit increasing by €225,000 – is only expected to be fully realized by 1 August. This schedule illustrates the last three of four distinct periods in benefits realization:

- Conception – during which the BRM is developed.
- Implementation – during which the program work is carried out. In our case study, as shown in Figure 3, this period lasts from 1 January to 31 May.

- Emergence – during which the effect of the work starts to deliver some benefits. In many cases, the start of this period will overlap the end of the implementation period. For our case study, as shown in **Error! Reference source not found.**, this phase lasts from 1 March to 31 July.
- Accrual – the full set of planned benefits exists and has reached its maximum delivery potential. This period starts at the end of the emergence period, on 1 August.

From an organizational point of view, the responsibility of the program manager is normally defined to end once the implementation period is complete. However, to ensure that the full benefits are realized, as discussed in [Stretton 2018], the ongoing responsibility needs to be transitioned to a benefits manager. Ideally, the handover should be carried out during the emergence period and be complete by the start of accrual. This requirement does mean that the program completion date should be set to the end of the emergence period, and not – as normally defined – the end of implementation. This modified definition of the role of the program manager would enhance the chances of achieving the planned strategic objectives. The schedule for realizing the corresponding benefits during the emergence and accrual periods should be one of the key handover artifacts from the program manager to the benefits manager.

The level of benefits realization is only achieved progressively, and our challenge now is to understand how to forecast emergence and accrual at intermediate points – in our case, monthly – between the start of the project and, for example, the break-even point for the investment in the program. When associated with the spend on the component projects, this forecast will allow us to carry out cash-flow calculations and to analyze the entire payback period.

As explained above, whereas the spend profile for the program depends directly on the planned dates in the program roadmap, the actual realization of the forecast benefits must take into account the lead times defined in the extended roadmap. As can be seen in Figure 4, the lags affect the milestone dates for actual realization of corresponding contributions from left to right. In a similar way, to calculate the delay-related benefits forecast, we need to distribute the benefits contributions from left to right taking the lags into account. For example, the contribution from D=*Call Treatment Procedures* will not be available for F=*Effective Customer Communication* until one month after D=*Call Treatment Procedures* has earned it. To put it another way, at a given date, F=*Effective Customer Communication* will depend on the previous month's benefit contribution from D=*Call Treatment Procedures*. The way in which initiatives are expected to contribute to benefits realization also needs to be modified with respect to the proportional Earned Benefit approach described earlier (EB = EBAC x PC).

Although, for implementation tracking, the Earned Benefit of an initiative is proportional to the initiative's percent complete, a different rule is required for forecasting its corresponding benefits realization effect (its "Realized Benefit Contribution"). This is because no actual benefit contribution can be obtained from an initiative until that initiative has created its deliverable or capability. For this reason, the contribution of each initiative will be set to €0

until the initiative's planned end-date, and then to its full, calculated, benefits contribution value. This is known as the "binary transfer convention". These contributions to the realized benefits then need to be distributed through the BRM across to the required strategic outcomes, to model the overall effect on the realization of the program benefit.

As explained above, in order to calculate the benefit realized at any point in time (the "Scheduled Benefit" (SB)), we need to start from the initiatives (on the left-hand side), using the binary transfer convention to calculate the initiatives' realized benefit contribution, and then, one step at a time across the model, adjust for the lags, and apply the allocation fractions delivered by the BEER, using the ALE to allow for essential links,. This process (the "Benefits Realization Evaluation Workflow" (BREW)) provides the contributions to the benefit realized by each node in the map and by the overall program, based on the percentage completion of the initiatives.

The BREW can be used to develop a time-based realization schedule (the SB) by evaluating the program benefit that will be realized at pre-defined intervals from the start of implementation period. This forecast can be used, for example, in verifying the validity of the business case prior to implementation, as well as for tracking performance during the emergence and accrual periods.

The schedule information also allows us to develop a cash-flow analysis for the example in **Error! Reference source not found.** by calculating the Planned Value (i.e., the total agreed spend at a given date, PV) and the Scheduled Benefit at the same date. Note that the PV has been calculated using a "proportional" convention. The result is shown graphically in Figure 5. This analysis shows that the 5-month program (the Implementation period) does not realize its full benefit potential until two months after completion of the program work (this corresponds to the end of the emergence period and the start of the accrual period), and that break-even comes another five months later.

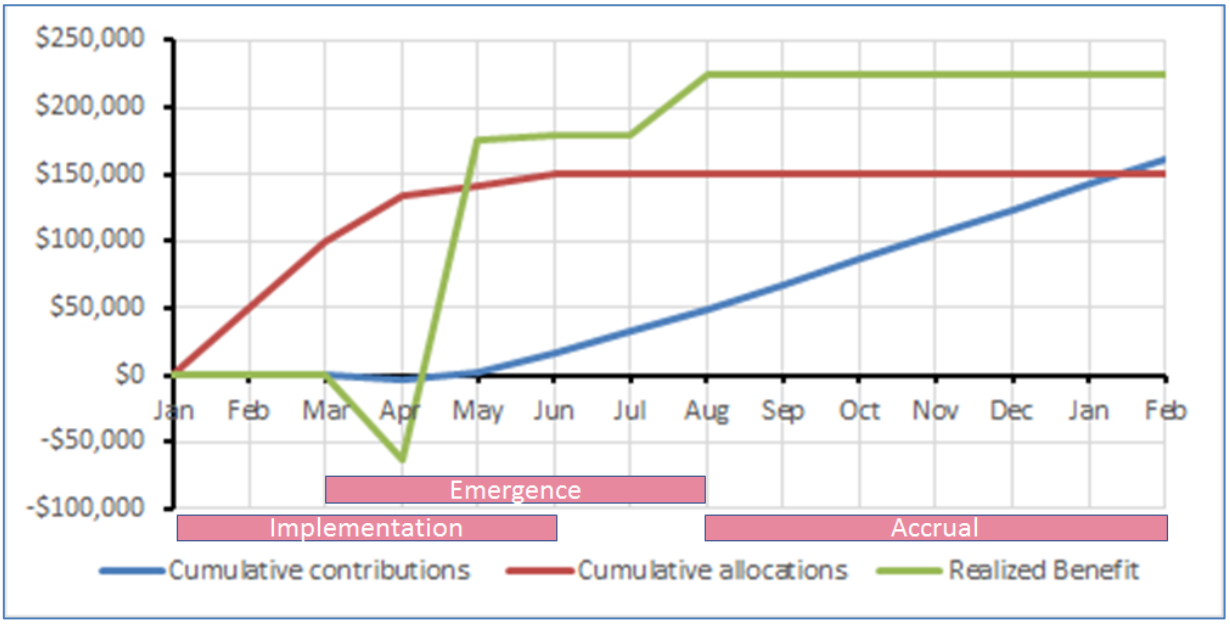

Figure 5: Realized Benefit Plus Cash Flow Forecast for the Complete Model

One feature of this cash-flow diagram that may appear surprising a first sight is that, between March and mid-April, the Scheduled Benefit is negative (i.e., that the program is costing money in addition to the cost of the initiatives). This is due to the fact that M=*Extra Operational Spend* (the disbenefit node) which depends on both E=*Call Documentation and Tracking* and J=*Continuous Improvement* starts ramping up immediately, whereas L=*More Business* does not start to contribute to the strategic outcome L=*More Profit* until one month later. This feature underlines another important message when developing the BRM: the additional organizational costs along with the corresponding benefits transition and realization activities as explained in [Stratton 2018] arising directly out of the program must be included as disbenefits within the model itself, rather than being considered only as a later charge to overheads.

Another way of displaying the results of the analysis for the financial stakeholders is to plot the program's return on investment (ROI = (contribution – cost) / cost), taking into account both the contributions from the scheduled benefits and the allocations to the implementation costs, as shown in Figure 6.

Figure 6: Return on Investment from the Beginning of the Program

Note that a similar analysis could be carried out by applying a binary "planned spend" convention based on the assumption that the costs only appear once the corresponding project completes.

Conclusion

This article described an important milestone in the development of the Earned Benefit Management framework and methods. We have not only developed *Earned Benefit* as a means of tracking program performance during the implementation period, we have added the *Realized Benefit* technique to allow us to forecast the results of the program beyond completion of the implementation period. This long-term forecasting capability allows us to improve business case development as well as providing a baseline against which to track business performance during benefits emergence and accrual. Over time, tracking actual versus predicted performance also allows us to review the accuracy of our business modelling techniques and learn valuable lessons for future programs.

The next articles will explain how the BEER and BAR can be used to provide additional insights into the program itself and into the environment in which it is carried out.

References

1. Piney, C. (2018a). *Applying Earned Benefit; Introduction to a new Series.* PM World Journal, Volume VII, Issue II February 2018. https://pmworldjournal.net/article/applying-earned-benefit/
2. Piney, C. (2018b). *Benefits Maps You Can Count On*. PM World Journal, Series on Applying Earned Benefit Management, Volume VII, Issue III, March 2018. http://pmworldjournal.net/article/benefits-maps-can-count/
3. Piney, C. (2018c). *The Value of Benefits*. Series on Applying Earned Benefit Management, PM World Journal, Volume VII, Issue IV, April 2018. http://pmworldjournal.net/article/the-value-of-benefits/
4. Piney, C. (2018d), *The Cost of Benefits*, Series on Applying Earned Benefit Management, PM World Journal, Volume VII, Issue VI, June 2018. https://pmworldjournal.net/article/the-cost-of-benefits/
5. Piney, C. (2018e). *Disappearing Benefits*, Series on Applying Earned Benefit Management, PM World Journal, Vol. VII, Issue VIII – August 2018 https://pmworldjournal.net/article/disappearing-benefits/
6. Stretton, A. (2018). *Stage 5: Achieve strategic outcomes and realise benefits*, Series on Organizational Strategic Planning and Execution, PM World Journal, Volume VII, Issue VIII – August 2018 https://pmworldjournal.net/article/stage-5-achieve-strategic-outcomes-and-realise-benefits/

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After many years managing international IT projects within large corporations, **Crispin ("Kik") Piney**, B.Sc., PgMP is now a freelance project management consultant based in the South of France. At present, his main areas of focus are risk management, integrated Portfolio, Program and Project management, scope management and organizational maturity, as well as time and cost control. He has developed advanced training courses on these topics, which he delivers in English and in French to international audiences from various industries. In the consultancy area, he has developed and delivered a practical project management maturity analysis and action-planning consultancy package.

Kik has carried out work for PMI on the first Edition of the Organizational Project Management Maturity Model (*OPM3™)* as well as participating actively in fourth edition of the *Guide to the Project Management Body of Knowledge* and was also vice-chairman of the Translation Verification Committee for the Third Edition. He was a significant contributor to the second edition of both PMI's Standard for Program Management as well as the Standard for Portfolio Management. In 2008, he was the first person in France to receive PMI's PgMP® credential; he was also the first recipient in France of the PfMP® credential. He is co-author of PMI's *Practice Standard for Risk Management*. He collaborates with David Hillson (the "Risk Doctor") by translating his monthly risk briefings into French. He has presented at a number of recent PMI conferences and published formal papers.

Kik Piney is the author of the book *Earned Benefit Program Management, Aligning, Realizing and Sustaining Strategy*, published by CRC Press in 2018

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