January 2015

Vol. 9 • Issue 1

INTERNATIONAL
FUNCTION POINT
USERS GROUP
191 Clarksville Road
Princeton Junction, NJ 08550
USA

www.ifpug.org

MetricViews

FUNCTION POINT ALIGNMENT

Inside...

Message from the President

Kriste Lawrence

IFPUG – FP SIZING.

I want to start this Message by thanking some IFPUG Board Members who are continuing in their current positions and those who are moving on to new positions as well as our newly elected member.

Several years ago the Board of Directors and IFPUG membership voted to update the IFPUG Bylaws to change the term of the President, Vice President and Immediate Past President to two years. Therefore I continue as President, Tom Cagley continues to serve as Vice President and Joe Schofield continues to serve as Immediate Past President until October 31, 2015.

Mauricio Aguiar has been elected Secretary and is now the Director of Communications and Marketing. Mauricio has served the IFPUG membership in many different capacities during his tenure on and off the Board of Directors. A few notable ways in which Mauricio has served IFPUG and our membership is by enabling two ISMA Conferences in Brasil, serving as Director of the International Membership Committee, Vice President, President and Past President.

Debra Maschino was reelected to the Treasurer position and is taking a proactive view in growing IFPUG's capital so that we can invest in new products and services. Debra's leadership has led us to a reduction in operating expense and a change in philosophy toward managing IFPUG's assets.

Luigi Buglione is continuing as Director of Education and Conferences. Luigi, along with LEDAmc, hosted a fantastic conference in Madrid, Spain in March, 2014. Luigi and his Conference and Education Committee are working diligently to plan our ISMA10 Conference which will be held in Charlotte, North Carolina, USA, on April 30, 2015. Luigi and his committee are also working on providing webinars on many chapters from The *IFPUG Guide to IT and Software Measurement* book. Two webinars, "How to Improve your Development Process Using the Indicator of Productivity" by Eduardo Oliveira, and "Effort Estimation for Software Projects" by Murali Chemuturi, are already available at http://vimeo.com/113956247. Look for more information on both the ISMA10 Conference and additional webinars coming to your in-box in the near future.

Pierre Almén was recently elected to the Board of Directors and is now the Director of International Membership. Pierre is excited about his new challenge and is eager to enhance the benefits received by IFPUG's International Membership. Over the past year, we have identified two Country Representatives, Marcio Silveira of Brasil and Gianfranco Lanza of Italy. The creation of the Country Representative position has greatly helped our members in those two countries by assisting others within their country, in their own language, in their own time zone and by increasing their "national" presence. I hope to expand our Country Representation to one or two more countries in the next calendar year.

As the Board of Directors was discussing our current organizational chart with an eye to the future, we made a decision to "shake things up" a little bit. It was no longer logical to have a "Counting Standards" Directorate that focused solely on Sizing, Certification and ISO standards all related to only Function Points. Additionally, it was no longer logical to have SNAP within the Applied Programs Directorate. Therefore, we have renamed the Director of Counting

Standards to Director of Sizing Standards. Dácil Castelo has graciously accepted this position. Dácil will be the liaison for the Functional Sizing Standards and Non-Functional Sizing Standards Committees. I hope that Dácil and her committees continue to look for ways to compare and contrast the FPA and SNAP methods, and to continue to show how the two methods support each other. Additionally, the new focus of this Directorate allows IFPUG to expand to other Sizing Standards in the future.

As I just mentioned, we have moved the Non-Functional Sizing Standards Committee out of the Applied Programs Directorate. But don't worry – this Directorate has grown, not shrunken! Christine Green continues as the Director of Applied Programs. Christine will now be leading the Certification Committee focusing on certification for both FPA and SNAP, the ISO Committee focusing on how IFPUG (FPA and SNAP) can be part of other ISO Standards and the Special Innovation Program (SIP). Many of you may not know of the SIP as this is a fairly new endeavor. The SIP is designed to charter short-term projects such as "FP around the World" where a survey will be sent to the membership asking questions related to their use of Function Points. Once the surveys are completed analysis will be performed and the results will be provided back to us all.

While I have mentioned the 2014-2015 Board, I cannot fail to mention our Board member who has recently left. Over the past three years, Lori Holmes has been a fabulous Director of Counting Standards, fulfilling her duties as Liaison to the Functional Sizing Standards, Certification and ISO Committees. Lori became a member of IFPUG in 1992 and was one of the first Certified Function Point Specialists (CFPS) to achieve the CFPS Fellow designation in 2013. I personally have known Lori since early 1995 when she came to my company to participate in development of a global Function Point baseline. I will miss Lori's contribution to the Board and wish her well in her future endeavors.

And now, I'd like to talk about the rest of us and our future with IFPUG. IFPUG is driven by all of us; IFPUG members, IFPUG volunteers, IFPUG committee members, IFPUG partners (formerly referred to as vendors), and the IFPUG Board. We are what make it all happen. To show some of what we have done in 2014, here is a partial list of our accomplishments:

- Developed several uTips, iTips and added our first vTip, and expanded the use of the "Tips" to SNAP,
- Certified more than 50 Certified SNAP Practitioners (CSPs),
- Recognized nine (9) individuals as CFPS Fellows (with a minimum of 20 concurrent years as CFPS),
- Added two (2) Country Representatives,
- Developed the Countrywide Corporate Membership level,
- Held ISMA[9] in Madrid,
- Taught two (2) SNAP Train-the-Trainer classes and certified three (3) Partner Companies as official Training partners, and
- Partnered with IT Metrics & Productivity Institute (ITMPI) to broaden the scope of available educational webinars for our IFPUG paid members

As you may know by now, the ISMA[10] Conference in Charlotte, North Carolina, USA will be held on April 30, 2015 and will have a no-cost-to-members registration. The ISMA[10] Conference will be highlighted by a keynote speaker from the local Charlotte area and is filled with a host of excellent presentation topics.

The IFPUG Board of Directors is continually striving to identify additional benefits and services for our membership. As we continue working together in 2015 and beyond, we reinforce our mission to be the world-wide leader in software measurement products and services.

I still believe in the way I ended my President's article at the beginning of 2014. - WE need to work together to make IFPUG's future as bright and innovative as it can be. Let's increase our value by providing relevant, industry-shaping products and services to our customers and members! Join a committee, make a suggestion, become certified, and/or get involved by sharing and using software measurement products and services from IFPUG!

MetricViews
Published twice a year by the International Function Point Users Group (IFPUG), headquartered in Princeton Junction, New Jersey, U.S.A.

MetricViews January 2015

IFPUG/*MetricViews*
191 Clarksville Road
Princeton Junction, NJ 08550
(609) 799-4900
ifpug@ifpug.org

From the Editor's Desk

Paul Radford

Function Point Alignment?

I once had a CEO who spoke continually about aligning the vectors. None of us had a clue what he was talking about—but he was on the right path.

Our use of function points has been a little like that. We are giving out good advice—but most people haven't really understood what we are saying. And IFPUG itself has been pushed and pulled in a variety of different directions.

What it comes down to is that functional sizing is useful in a myriad number of ways. Aligning your application of function points to match your needs is part of the challenge.

In this issue of *MetricsViews* we explore some very different and very effective applications of function point sizing. Agile approaches have tended to favour ad hoc approaches to measurement—how a little measurement can help define focus is often forgotten. Several articles attack the subject in different ways.

Aligning measurement with a business perspective is another recurring theme in articles this new year. Business yearns for information but does not know how to frame the question; we know the answers but we also know we are not dealing in absolutes—and this rarely satisfies.

Learning from others is sometimes as much in relation to communication as it is to knowledge and technique.

I trust you will gain something from this issue of *MetricViews*.

Aligning Productivity Measurement with Agile Delivery

by Sushmitha Anantha and Amolkumar Keote

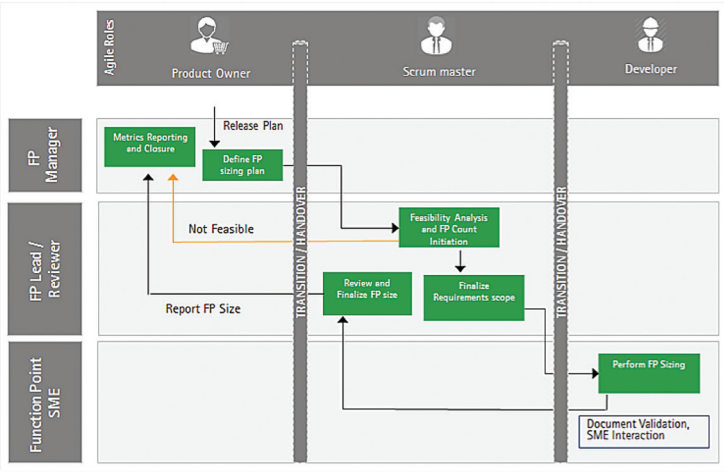
As a technology independent measure of functionality, the Function Point method is quite popular in the industry. In one of our client engagements, we measured productivity as number of hours of delivery effort taken per Function Point (FP), or *delivery rate*. Productivity measurement helps show improvement in productivity on a year over year basis. At some point, the client wanted us to compare the program's productivity against available industry benchmarks to see where they stand. With this, Pandora's Box was opened; our productivity appeared to be less than industry benchmarks, for example, ISBSG.

Currently, most productivity benchmark values are based on Waterfall model methodologies which have been common in most software development industries. As compared to traditional Waterfall projects, productivity observed in Agile projects is 30% lower than in the traditional method. What could cause the difference? Several potential reasons can be identified, including the relatively high business requirement's volatility in Agile projects. However, there was a need to better understand the differences in productivity between the two methods of software development.

To address this question, we looked at the difference in the software development methodologies and how they were being measured. We examined a project that was using the Agile way of working, where the required features were prioritized based on their value in

the market. There were many instances of these features getting de-scoped for various reasons. Such instances had an adverse effect on productivity, which was being measured based only on the function points delivered at the end of the software release.

Figure 1: Agile FP sizing – Roles & Responsibilities and Process Flow



As per the software development process outlined in Figure 1, the **Product Owner** and **FP SME** identified the number of software releases or data points required. The **Scrum Master** and **FP SME** identified which data points were eligible for FP counting and also identified the personnel required to complete the FP sizing. This marked the initiation of FP counting process. The **Developer(s)** and **FP SME** participated in FP counting through formal meetings. The **Scrum Master** and **FP SME** reviewed the counts for both functional coverage and correctness. The **Product Owner** and **FP SME** involved in the report phase marked the end of Function Point measurement process.

Existing Productivity Measurement Process per Release:

To outline the process in use currently for Waterfall methods, we measured FPs on a software release basis. Formal interview discussions were conducted between the experts from the delivery team and FP expert. During the session, design engineers explained the functionality that was deployed as part of given release. The FP expert provided the expertise in FP sizing and gauged each of the affected functionalities. Finally, the Effort Hours per software release were used along with the FP size to arrive at the productivity metric for the release. The productivity was calculated as ratio of Effort Hours required to generate the FPs: ***Productivity = Effort in Hours / Functionality Delivered in FPs***

In this method the function point counting was done at the end of software release, which took into consideration all the features that were delivered to the client as part of the software release. There could be some features that were initially scoped, worked upon, but later de-scoped. Also, there could have been some features which are common to two or more functionalities, which were independently designed, developed and tested in different Agile sprints. In such an instance, the two changes will be counted only once.

Example: In a given release if there are three Agile sprints

- Sprint 1 developed a new feature equivalent of 24 FPs and modified existing functionality worth 42 FPs. Effort taken by Sprint-1 was 660 Hours.
- Sprint 2 added new features of 16 FPs, modified existing features (that weren't touched by Sprint 1) of 10 FPs,

(continued on next page)

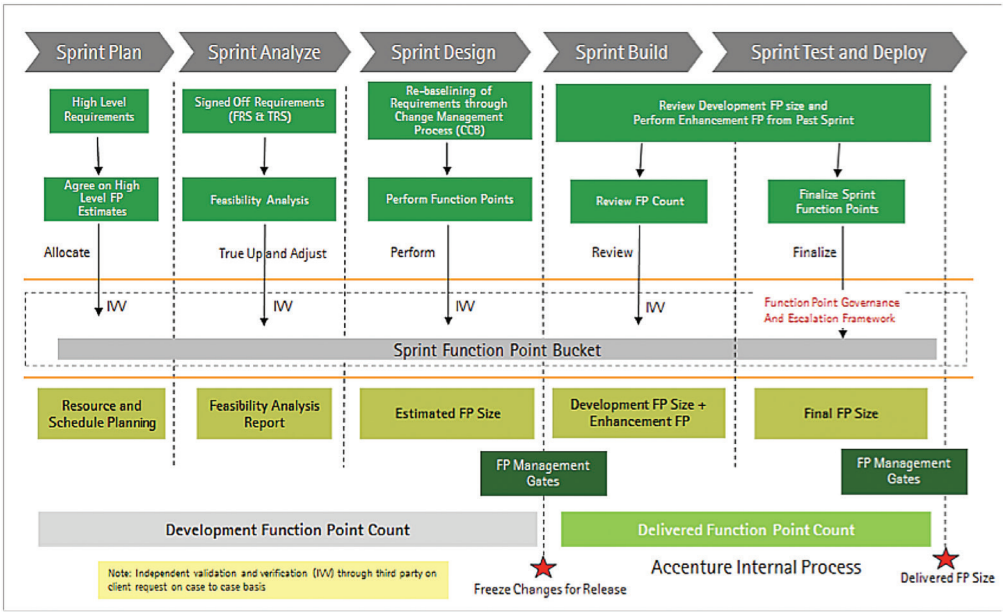
(continued from page 5)

changed features (that were part of Sprint 1 as well) of 12 FPs and removed functionality of 12 FPs. The effort taken for Sprint-2 was approximately 600 Hours.

- Sprint 3 added 8 FPs, modified 4 FPs, changed 8 FPs and deleted 4 FPs. The effort taken by Sprint-3 was approximately 300 hours

After the release, when the functionality was tabulated, the business requirement that was de-scoped was not considered even if it required significant development effort. Features that have common functionality touched by different business requirements were counted only once and the FPs that were 'changed' were not considered. As a result, the total FPs in the above software release was 104 FPs. With total efforts of 1560 hours the productivity was 15 Hours/FP. If certain end-to-end efforts would be taken into consideration then productivity would be further reduced.

Figure 2: FP Management Plan for Agile Projects:



Proposed Productivity Measurement per Agile Sprint: As the representation of inclusive software development effort is missing in the above approach, we tried a sprint-wise productivity measurement approach. In a given sprint, the requirements are more stable and all the de-scoping can be contained within the sprint.

The idea is to perform FP sizing on a sprint's scope. This will lead to counting all the features that were developed as part of a given sprint independently of other sprints.

Taking the same example that was described earlier,

- For Sprint 1, we have a total of 66 FPs developed in 660 Hours, resulting in a productivity result of 10 Hours/FP.
- Sprint 2 had a total of 50 FPs developed in 600 Hours; hence the productivity was 12 Hours/FP.
- Sprint 3 had a total of 24 FPs developed in 300 Hours, resulting in productivity of 12.5 Hours/FP.

If we compare each of the individual productivity-by-sprint to the release productivity, each sprint is more productive. So, did we really measure correct productivity when we reported 15 Hours/FP?

- Taking the weighted average of Agile sprint productivity, we could arrive at new release productivity of 140 FPs developed in 1560 Hours. This would result in a total of 11.43 Hours/FP.

Conclusion:

Due to the iterative nature of Agile Development, a sprint-wise sizing approach reflects a more accurate picture of the size and effort of developed functionality within each sprint, as compared to a traditional approach which measures delivered functionality.

References:

[1] Jones, Capers. Applied Software Measurement, Third Edition, 2008

[2] Santana, Célio et al. Agile Processes in Software Engineering and Extreme Programming, Springer Volume 77, 2011, pp 176-191

[3] Counting Practices Manual v 4.3, IFPUG

About the Authors:

Sushmitha Anantha *is presently working with Accenture as a Function Point Specialist. She has spent almost 8 years in the IT industry and is a Certified Function Point Specialist (CFPS) over the last 4 years.*

Amolkumar Keote *is the IDC Lead for Function Point capability. He is a certified Function Point Specialist (CFPS) for the last 6 years. In addition, he is also Certified in Agile Scrum Master, Microsoft, and ITIL V3. With over 12 years of experience in application development & maintenance, solution design, program and project management.*

Function Points as a Tool for the Appraisal of Software

by Curtis Graham, Guilherme Simões and Carlos Vazquez

Attributing a market value to a software system can be a complex process. There are various reasons to attribute monetary ($) value to a software application. Here are some of those reasons:

- Conduct IT Asset Management:
  - o Include software as part of the organization's assets
  - o Sell the application to another company
  - o Confirm the appraisal of a third party development firm
  - o Identify which components are considered as the most valuable
- Support Decision Making for IT Projects:
  - o Analyze if it's worth developing new software or if it's better to buy
  - o Help in cost and duration implication evaluation related to software decisions
  - o Help in decision making related to risk management

The problem arises when a company has the desire to appraise their software in $value terms but has no way to objectively calculate it. Function Point Analysis, amongst other tools, provides the foundation to logically calculate the first variable in appraising software - the cost related to developing it.

Introduction

Function Point Analysis is a method to measure a logical view of the software. It quantifies the functional size, as determined by the functional requirements. The method was developed at IBM in the 1970's and it is standardized, maintained and enhanced nowadays by IFPUG (The International Function Point Users Group).

Software Appraisal Method

When appraising a software application, it is important to express the monetary value as a range, using the cost to develop the application as the 'floor' (minimum value) and the results, the problems resolved and opportunities seized as the 'ceiling' (maximum value). Effort and cost are variables directly related to functional size. There are several estimation models that use functional size as an input to estimate effort or cost. For this article we will offer a simpler one: Cost = Functional Size x Delivery Rate x Person-Hour Value.

Value is something that can be perceived differently by any given entity. Therefore, we can say that this (business) value can be considered subjective. For example, a glass of water for someone who has been in a desert without drinking water for some time is more valuable in comparison to a person who has been swimming in a crystal clear river. An organization that is able to streamline an operational process by 50% with the use of said software, has a greater perceived value of this software than another organization that can only streamline the process by 5%. The added business value (ceiling) includes components such as *operational procedures* (flows that link different business functions), *quality levels* (number of defects), *performance and time to market levels*.

Keeping in mind that the perception of the added business value can be subjective, the floor of the appraisal (cost) based on its functional size is the only variable that can be objectively assessed to value the application. Other variables that can be calculated are the *quality levels* and *duration*. These two variables are considered under the discretion of the client as far as attributing a dollar amount to it.

Delivery Rates and Benchmarking for Software Development Projects

Once the application functional size is determined from its requirements [1][2], it is necessary to determine the delivery rate to develop an application like this one (of the same functional size) from the ground up. The best approach for this is to calculate the delivery rate using your own historical data from past projects. However, sometimes there is not enough data for this. An alternative however, yet not as good as the first, is to use a benchmark source to find a delivery rate. There are several benchmark sources for software projects data: Gartner Group, ISBSG and books from Capers Jones are some of them.

For example, we can extract a delivery rate from the International Software Benchmarking Standards Group (ISBSG) – dataset R11 [3] using the following fields as parameters for a given project:

a. Quality of Data: Records classified with insufficient quality were excluded.

b. Type of Count Used: IFPUG, NESMA

c. Functional Size: Not Null

d. Level of Effort: Not Null

e. Project Year: Post 2002

f. Type of Development: New Development

g. Primary Programing Language: JAVA

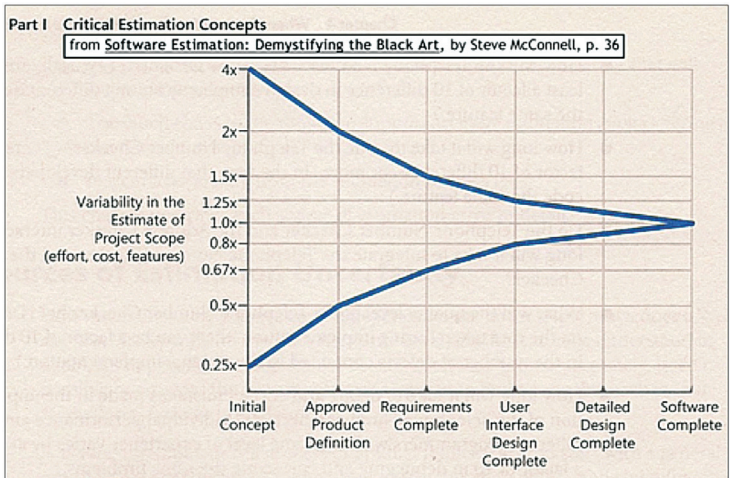
Using the percentage frequency of the benchmark information, the *Delivery Rate* was calculated to be at 14 Person-Hours per Function Point (PH/FP) with an 80% confidence factor that this number will not be underestimated.

The Delivery Rate alongside the functional size would theoretically allow for the calculation of the required effort (Required Effort = Function Points *Delivery Rate) to deliver

(continued on next page)

(continued from page 7)

the software. However, since this delivery rate was estimated, uncertainty had to be considered in the calculation. This was considered by both the Cone of Uncertainty by COCOMO II and the Project Evaluation and Review Technique (PERT). COCOMO II is an estimation model that allows for the estimation of cost, effort and schedule [4]. Moreover, COMOMO II is supplemented by the Cone of Uncertainty which describes that throughout the project life cycle, the amount of uncertainty decreases as time passes. One example of this can be the uncertainty that new requirements might suddenly 'appear', this is also known as scope creep.



Using the Cone of Uncertainty, a respective variable range needs to be selected in accordance to the stage of the life cycle that the project is in. If this information is not readily available, it can be determined by the level/detail of documentation provided by the client. The figure above represents the Cone of Uncertainty [5].

After the present ranges have been selected in the Cone of Uncertainty, the Project Evaluation and Review Technique (PERT) uses the selected ranges as inputs. The PERT formula is a method that was developed by Booz, Allen and Hamilton in the 1950s that allowed for more precise duration forecasting. It accomplishes this by calculating the average of three factors: the nominal estimate, pessimistic estimate and optimistic estimate [6].

Weighted Average for Project Estimates

Weighted Average = [Optimistic Estimation + 4(Nominal Estimation) + Pessimistic Estimation]/6

The optimistic and pessimistic estimation variables in the PERT formula above were replaced by the corresponding value of the range of the Cone of Uncertainty times the nominal estimation.

Once the PERT weighted average was calculated, it was possible to calculate the cost of the application using as a reference the Person-Hour value as defined by the client.

Cost of Application = Weighted Required Effort * Person-Hour Value

However, this result represents the floor value for the appraisal of the application as it was mentioned at the beginning of this article. The other variables that indirectly contribute to value were also calculated using the Functional Size as inputs. According to Estimating Software Costs, duration can be calculated with the following formula:

$$Duration\ (months) = Scope^{FP\ Constant}$$

Scope

In this case, Scope refers to the Functional Size count of the application. The FP constant, also provided by *Estimating Software Costs* [7], was selected from a list with different constants per type of project (commercial package was chosen). With these two variables, duration to develop a similar application was calculated. With this kind of information, any given client has the ability to recognize how long it would take to develop an application like this one and perform an opportunity cost analysis to see if it's worth using its resources to develop it.

Quality Level

Quality Level is another indirect component that can be used in the opportunity cost analysis. This variable can be defined in terms of Defects per Function Point (Defects/FP). Since *Quality Level* is affected by the type of development methodology being used to develop the application, the book *Applied Software Measurement – Global Analysis of Productivity and Quality* [8] was used as a reference. The Potential Defects and Defects Delivered constants were used for software with the same maturity level of the application being measured, which in this case was CMM Level 5.

Potential Defects = 5.5 * Functional Size

Defects Delivered = 0.22 * Functional Size

With this information, any particular business client interested in developing this kind of software application will have to consider the cost related to fixing said defects even after the application has been developed.

Function Point Analysis, as seen in the scenario above, can be considered more than just a sizing technique when used with other tools. Using benchmarking and historic data, FPA can be used to logically estimate the cost, duration and quality levels of any software to eventually attribute both a direct (cost) and indirect (business value) dollar amount to it.

REFERENCES

[1] Counting Practices Manual, International Function Point Users' Group (IFPUG). 4.3.1.

[2] Function Point Analysis For Software Enhancement Guidelines, NESMA, 2.2.1.

[3] International Software Benchmarking Standards Group (ISBSG). 2009. New Development & Enhancements Repository R11. http://www.isbsg.org.

[4] Software Cost Estimation with COCOMO II, Boehm, B.W. and Abts, C. and Brown, A.W. and Chulani, S. and Clark, B.K., 9780137025763, 2009, Prentice Hall.

[5] Software Estimation: Demystifying the Black Art (Developer Best Practices), Steve McConnell, 9780735605350, 2006, Microsoft Press; 1 Edition.

[6] A Guide to the Project Management Body of Knowledge: PMBOK(R) Guide, Project Management Institute, 9781935589679, 2013, Project Management Institute.

[7] Estimating Software Costs, Caper Jones, 9780070659490, 2007. McGraw-Hill Education.

[8] Applied Software Measurement: Global Analysis of Productivity and Quality, Caper Jones, 9780071502443, 2008, McGraw-Hill Education.

Partners' World!

David Consulting Group

Pennsylvania, USA

David Consulting Group (DCG) is a global provider of software analytics, software quality management and Agile development solutions. As the industry's leading independent provider of software sizing, we offer both Function Point Analysis and SNAP sizing services.

Since opening its doors in 1994, we have earned and maintained a reputation in the industry for our ability to help companies achieve their IT-related goals – and for our knowledge of how to do so quickly and effectively. Our consulting expertise enables us to position IT organizations for high quality, on-time and on-budget delivery of software through all phases of the development lifecycle. Our goal is always to improve our clients' bottom line via quantifiable changes in their software development.

Our clients span industries, regions, and size, including the Fortune 100 and Global 1000. Large enterprises, growing mid-cap companies and emerging technology leaders all rely on our expertise in helping them optimize their software production.

DCG maintains a U.S. corporate office in Malvern, P.A., and a European corporate office, DCG-SMS, in the U.K.

For more information, visit www.davidconsultinggroup.com or call 610-644-2856.

CHARISMATEK Software Metrics

Melbourne, Australia

Created in 1991, and now well established as a significant contributor across the world and as the hub of an international network of Metrics Partners, CHARISMATEK Software Metrics provides the highest level of software metrics and measurement based consulting & training services and products & tools to our clients.

At CHARISMATEK, we focus on using software sizing, metrics and quantitative analysis as a pragmatic and objective basis for addressing specific business issues. Real business and IT experience, in conjunction with unparalleled technical expertise, means that CHARISMATEK Software Metrics can provide you with practical and realistic assistance in a range of software and IT areas.

- Project Estimation - to assess the validity of budgets and schedules within a proposed business case or to determine a project's risk profile
- Scope Management - to clarify and negotiate software deliverables at project initiation and to track and control change throughout delivery
- Value for Money Assessments - to ensure you continue to receive value from your software delivery and support suppliers
- Contract Management - to devise project budgets and undertake software portfolio assessments
- Function Point Analysis - to determine the size of your software projects and applications.

CHARISMATEK publishes a high quality toolset for Function Point Analysis - the Function Point WORKBENCH. The foundation for any detailed count recorded in the WORKBENCH is a functional model which represents the software system. This model expresses the software graphically and allows the interrelationships between the software functions to be recorded and illustrated. By associating the details of a Function Point Analysis with a model of the software system, the WORKBENCH provides vivid and graphic support for the counting process. In addition, size can be approximated from physical artefacts using the Approximator module. Download a product brochure from http://www.charismatek.com/_public4/html/fpw_brochure.htm.

Keep the Baby

by Joe Schofield

Please don't tell me you're doing "agile." Really, what does that mean to anyone who actually knows something about agile? At least twelve different development approaches now claim a spot under the "agile" umbrella.[1] Many of these are incompatible. Many of these defy articles of the Agile Manifesto. Some of these are as heavy-weighted as any traditional methodology.[2] As comforting as those words might be to conventionalists, they portray a dichotomy with those who claim "if it's written down, it's not agile."

What about effectiveness of "agile" projects? An update in 2014 for *Scoring and Evaluating Software Methods* by Capers Jones rated Team Software Process TSP℠ and Personal Software Process PSP℠ projects more favorably than "agile" in producing fewer defects, with higher defect removal efficiency, and with fewer defects delivered. "Waterfall" based projects were rated lower than both TSP / PSP and "agile."[3]

Method: Metric:	FP/PMM	Defect/FP - Pre-test	DRE %	Defect/FP Delivered
TSP/PSP	11	3.6	96	0.14
Agile	10	3.8	92	0.30
Waterfall	8	4.5	87	0.59

FP/PM = Function points per Person-Month; Defect/FP = Defects per Function Point; DRE% = Defect Removal Efficiency

"People" are often at the center of "agile" projects gone wrong: Scrum Masters acting out of role, Product Owners not engaged, sponsors with spotty support, team members unable to stay focused, lack of agility in team members as they get locked into specific roles, team inexperience, and inadequate team training. Mismanaged sprints and technical debt accumulation also contribute to "agile" flops.[4]

Any reason to doubt that a survey of organizations using "agile" found 85 percent of those organizations had experienced some level of failure with "agile"?[5]

At the beginning of a recent workshop, I asked participants to define the word "it.[6] The brief exercise revealed some expected (and unexpected) results. A similar exercise on defining agile yields similar results with a range of variation under the canopy of practices known as "agile." Thus the use of the "agile" today in quotes throughout this article.

Culture and attitude also afflict "agile" projects. Misaligned values, inability to transition, unwillingness to try "agile" processes, and pressure to "do it the old way" ("Scrumfall") were cited by 39 percent of respondents as the cause of their tribulations.[4]

Wait. Don't throw in the towel just yet; maybe there's a baby in that bathwater. Of course, there it is. Call 9-1-1 —save the project, and the baby. We need the baby. We need much of the freshness of thinking and the new perspectives that come with "agile." Here are a few of my favorites:

- **Optics / visualization.** "Agile" is often cited for its transparency and visual cues. The product roadmap gives us an overall glimpse of the work. Task boards provide more of a micro view of the status of tasks. Burndown charts remind us of what's left to be completed. Velocity charts give us a clue as to how fast we are getting there. When completed with accurate data, each of these provides a snapshot that we've needed in the past.
- **The role of the product owner.** How many of us have longed for that perfect person to make a call on the business side, the "go to" person, the person that's always there for you? Not all product owners live up to their role, but those who do are an extravagance to a development team.
- **Definition of done.** "I thought you meant this when you said that." "No, I meant this instead of that." Been there? Felt that? Why not demarcate the finish line before you start the race? Defining "done" does exactly that. Defining "done" is a responsibility of the product owner, and while some "agile" proponents don't want to admit it, it is a "contracted" outcome. That doesn't nullify its value; in essence, it may increase it.
- **Daily stand-ups.** Daily (and I emphasize the "daily" in "daily"), short, focused, direct, strictly formatted, and team-driven are some of the characteristics of these meetings that provide timely visibility to teams and tasks. Not everyone gets to participate or talk—just the right folks. No management questions, at least not here. Daily stand-ups are definitely preferred to the days when you don't see fellow team members for weeks at a time, aren't sure of the status of dependencies, can't find the customer, or aren't clear as to which priorities are next.
- **"As a" statements** for story creation and the use of personas. Repeatable and structured practices drive lean and effective processes. These words aren't always "welcome" in "agile" circles, yet, "AS a *PERSONA*, I WANT / NEED SO THAT . . ." is a powerful construct for epics (high level requirements) and stories (lower level requirements). The persona eliminates the developer guessing approach to requirements often interjected when desperation intersects with schedule pressures. It also minimizes the "us vs. them" conflict when development teams don't have sufficient access to stakeholders and their needs.
- **Sprint demos / reviews.** Once again "agile" and most definitively Scrum, asserts a disciplined engagement among the development team and the product owner. (Discipline

and structure aren't the characterizations embraced by the entire "agile"; though they seem to be gaining increasing acceptance.) Feedback, interaction, closure, re-focus, and usage of "done" are employed during these cyclic events. Planned and time-boxed (similar to the stand-ups) these meetings are necessary to keeping the team informed and the customer current on progress.

- **Retrospectives.** Another MEETING! Don't scream. All three of the meetings in this list add value to the stakeholders, the product, or the process. Retrospectives provide improvement value to the process and the development team who are its only participants. Again, these meetings are planned events in the rhythm of iterations. Retrospective meetings are targeted at identifying enhancements addressing what and often the how. Don't skimp on retrospectives.
- Strong **focus on teaming.** No process description for any methodology prescribes poor team commitment, weak relationships, and disjointed ownership (though feature-driven development is based on individual code ownership). Team rooms, war rooms, and bull pens exemplify some of the synonyms for team facilities. But "agile" makes successful teaming conditions explicit. "Agilists" BEWARE—these techniques work for traditional methodologies (dare I say "waterfall") also; it's just rare that we get to benefit from following potent teaming principles.
- Using recent **performance to estimate** work being planned. No doubt influenced by the team's velocity, teams limit their optimism based on recent productivity. Is this approach not intuitive? This principle cautions teams that promise to "catch up later" or to rely on increased momentum going forward while discounting the uncertainty of the future. Another way to think about this "bounded estimation" is "slippage debt"—teams mitigate credibility risk by not over-promising.
- **More definition and discipline** than advertised. Most of these "favorite things" imply (impose) a degree of discipline which some "agile" advocates would consider anti-agile. Sorry. It's just how I'm wired and how I roll.

From the earliest days of the "agile" movement, "agile" was used as the anti-venom for waterfall reinforcing an "anything but that" mentality. Clearly not all the "agile" world intended that anything non-waterfall would fall into the "agile" bucket. Jim Highsmith once noted:

"The Agile movement is not anti-methodology, in fact, many of us want to restore credibility to the word methodology. We want to restore a balance. We embrace modeling, but not in order to file some diagram in a dusty corporate repository. We embrace documentation, but not hundreds of pages of never-maintained and rarely-used tomes. We plan, but recognize the limits of planning in a turbulent environment.[7]

When reviewing the list of practices, or lack thereof, for "agile" teams that have experienced turbulence, lost altitude, even crash-landed, one could argue that failed "agile" projects failed by not being "agile" projects at all. An explanation could be proffered of more "traditional" projects; in actuality, some of those failed because they did follow a disciplined process that just didn't mesh well with the needs of the product development and its stakeholders.

Today we have more choices. That doesn't guarantee us that the right choice will be selected; knowledge and thinking are still required. Some of us may refer to this as "adult supervision."

Excuse my sensitivity to the use of the word "agile"; clearly it's overloaded and in dire need of disambiguation. Many organizations are getting it; some will get it right. Learning organizations will get it right sooner. Until then, **keep the baby!**

References and further readings:

1 retrieved Wikipedia, Agile Software Development, 8/30/2014: Adaptive Software Development (ASD); Agile Modeling; Agile Unified Process (AUP); Crystal Methods (Crystal Clear); Disciplined Agile Delivery; Dynamic Systems Development Method (DSDM); Extreme Programming (XP); Feature Driven Development (FDD); Lean software development; Kanban (development); Scrum; Scrum-ban

2 Crystal (maroon) and DSDM, as examples

3 Capers Jones; Scoring and Evaluating Software Methods, Practices, and Results; Version 10.0; July 23, 2014. The data for the scoring comes from observations among about 150 Fortune 500 companies, some 50 smaller companies, and 30 government organizations. Negative scores also include data from 15 lawsuits. The rankings are based on about 20,000 projects that span 50 industries and 24 countries.

4 Common Agile Pitfalls, retrieved and summarized from Wikipedia, Agile Software Development, 9/4/2014

5 VERSIONONE; 8th Annual State of Agile™ Survey; 2014

6 Transitioning to Agile Workshop; Schofield; September, 2014

7 History: The Agile Manifesto; Jim Highsmith; 2001; agilemanifesto.org

Joe Schofield

CFPS, SMC, AEC, CSQA, CSMS, Certified CMMI Instructor
joescho@joejr.com, http://joejr.com/bio

Measuring Productivity of a Software Team

by Carlos Eduardo Vazquez, CFPS, Fatto Software Consulting

As a software organization aims to reach maximum team productivity levels, there are key questions that must be addressed. How to ensure that a software team is productive? How to improve team performance to achieve higher levels of performance? Those are some of the questions addressed in this article.

What is a productive software development team?

People ask me: "What is a productive software development team?" The answer is too simple: It is a team which produces outcomes! This answer seems as simplistic as the classic "42" answer from Deep Thought in the *The Hitchhiker's Guide to the Galaxy* book; so, it's worth exploring the question a little more—perhaps analyzing the possible outcomes - before coming to a conclusion.

The term software may refer to a variety of different product types such as computer programs, configuration scripts, user interface specifications, requirements documents, architectural design plans, test cases and other software representations. Therefore, when performing productivity tests, it is necessary to establish the appropriate perspective (or perspectives in some cases) in order to assess how productive a team is when compared to a referenced scale.

The referenced scale is necessary, in that often the interest is not whether a team is productive or not, but:

1. How productive it is?
2. How productive does it need to be?
3. How does its productivity performance compare against other teams in the market?

If management chooses a business perspective instead of a technical one (that requires far greater technical details, issues resolved, and detailed understanding), then an appropriate choice of measure to use is the functionality delivered or impacted by the project. For software maintenance activities, a compatible product representation can be the functionality added, deleted and changed.

Maintenance activities and productivity

There are different activity types related to software maintenance, such as bug fixes, functional enhancements, technology upgrades, etc. It is possible to measure productivity in all of them. However, it is first necessary to determine what the desired deliverables – or outcomes - are for a given perspective for each type of maintenance.

If the outcome is related to service levels of availability:

What are the outcomes in maintenance types such as bug fixes (not covered by the warranty), level III help desk support, and other application support activities? It is the service availability instead of a series of functionalities delivered. There are times when no support activity is required and the team spends no direct effort to achieve the desired outcome; but when they do, it must adhere to certain service levels, such as the time to start addressing the issue and the time limit to solve it. What matters most to manage productivity for this maintenance type is the resource usage levels and not the outcome already defined in service level agreements (SLA). It may be measured in terms of degrees of adherence of the actual performance against the targets defined within the SLA during a tracking window, such as a month, a quarter or a fiscal year.

If the outcome addresses non-functional requirements and some infrastructure functionality:

Imagine a scenario where there is no change whatsoever to the functional dimension of an application software, so that there is no change in:

- Business rules;
- Information presented to the user by the application;
- Data input by the user into the application;
- Data retrieved by the application;
- Data stored by the application.

However, there is the introduction of a new framework providing a series of shared services to the application, which requires a high-impact intervention spanning the application as a whole. In a scenario like this, the delivered outcomes of such maintenance might be the:

- New framework delivered;
- Existing functionality working properly in the new context defined by that framework.

Therefore, two measures for two different outcomes may be used. One measurement would be to size the development of the new framework and another to size the scope of the application impacted by the introduction of the new framework. Both measures can assist to plan and measure productivity using the appropriate reference scale.

Productivity as a process attribute

The concept of measuring a teams' productivity is, in fact, a simplification. Actually, management wants to assess the performance of a (software) production process. It is paramount you do not mix up data from a project like the previous example, which introduces the new framework, with data from developing a new system from scratch. Each software production process has its own unique probability distribution of its productivity and information. For example, average productivity rates from

one process are meaningless to plan and monitor the performance of another.

Let me explain a bit further, what I meant when I stated:

"…another to size the scope of the application impacted by the introduction of the new framework."

Even though it is definitely not an enhancement project, there is nothing stopping me from using the functionality impacted as a reference for the product outcome for this engagement. I just cannot compare the measurement of this outcome with other enhancement measurements.

However, if I use a factor in order to make the two processes in review (a functional development and a technological improvement) compatible, then there should be no problem in comparing the two. A factor (let us call it an Average Functional Technical Equivalent Factor - AFTEF) plays this role and the comparison of data from both processes produces this factor value.

The concept is not new. NESMA's Function Point Analysis for Software Enhancement does something similar by determining a percentage of change as an impact factor, and Q/P Management Group made available its Impact Points Counting Guidelines.

If the Outcome is Software Performance Improvement:

Some software processing takes up to 48 hours to complete: the software team should restructure its architecture and the programs implementing it, so that after its completion, it will take less than 24 hours to process.

It is not an enhancement and the team must update the software configuration only regarding configuration items from architecture and implementation disciplines. After all, this engagement has not altered the application baseline functionality at the requirements level. However, it is still possible to track which functionality in this business perspective the engagement impacts.

The best practice is to compare different processes, such as the one about the new framework and the other about the performance enhancement, in order to determine objective criteria to classify those maintenance types and to establish values corresponding to the AFTEF.

For instance, analysis of 12 engagements for performance enhancements, such as the one described in this text, indicates that while the average productivity for a change in an enhancement project functionality is 05 Staff-Hours / FP, the performance improvement engagements have a poorer average delivery rate of 10 Staff-Hours / FP.

The AFTEF from Performance Improvement (as described in the example) is set as a factor of 2.00. All other priorities aside and, depending on the relationship between the productivity of a change involving enhancement project functionality and new development functionality, it is more productive to throw away the software and develop a new one in this scenario.

Advantages of using FPA in productivity measurement

It is important to state that FPA, which produces units for functional measurement, is a method with a higher level of maturity, professional support and organizational experience than any other in the marketplace. There is also the IFPUG – International Function Points Users Group – responsible for its maintenance and evolution since 1986.

The use of functional measurement takes as an input the functional requirements related to the tasks and services as defined within business functional organization structure and business process models. It does not consider late design or implementation decisions. Therefore, it is a measurement directly related to user knowledge, skills, vocabulary and understanding.

If some other internal or technical measurement method were to be used, it would not be possible for the client to audit the results presented by the development team. That by itself is a big enough reason to discourage its use for productivity assessments purposes.

To use a functional metric balances the trends in action when assessing productivity. There is a push from the team towards inflation of resource usage, while the client has the power to impose a different push to increase the production. In some circumstances, we witness some very passionate debates over this dynamic. If the team increases its resource usage regardless of a proportional increase in production, then it creates a drive to decrease its productivity. If the user increases the scope, then he understands there will be a proportional counterpart in resource usage. A dynamic like this is only possible when there is some reliable functional metric supporting the measurement of production, like IFPUG function points.

A non-IT professional can use FPA?

There are those who think that if a person is not from the IT area, then that person cannot use FPA. That belief is wrong. I have trained thousands of people in FPA for over 20 years and I can safely say that about half of the time spent was dedicated to supporting IT professionals to unlearn (and sometimes to accept the dual role of) a software technical perspective. This definitely makes FPA more difficult to use. I have had, during those years, the opportunity to watch business people use FPA and take control of processes where they, at one point in time in the past, played the role of observers.

Communications and Marketing Committee

By David Thompson, Chair

A new committee member; more use of social media; planning for ISMA10; many content updates and e-blasts

In July, we welcomed Justin Keswick as our newest member of the CMC. Justin lives in Toronto and works for the Bank of Montreal, an organization that has been active in the Function Point community for quite a while. Justin has an interest in the use of social media and in marketing, and has already been an eager committee member. Welcome, Justin!

In the social media arena we undertook a task to try to combine two different LinkedIn groups, to reduce the number of places that interested participants would need to visit in order to contribute to discussions. This proved to be difficult to do, but we did succeed in designating one of the groups as the "official" IFPUG group, and to remove the IFPUG logo and the name IFPUG from the other one. Also, we have added code to the WordPress web authoring platform that automatically sends updates to Twitter, Facebook, and LinkedIn every time a new post is added to the IFPUG home page, extending our reach into these media.

We have started promoting, through website posts and e-blasts, the upcoming ISMA10 conference in Charlotte, North Caroline, USA, on April 30th, 2015.

To date in the second half of this year through mid-November, we have made 61 requested website updates and sent out 41 periodic e-blasts.

We are also in the planning stages for a SNAP Trademark Contest, similar to the successful contest we ran last year for a new IFPUG banner. Look for news on that shortly. And we have made plans to market the value of CFPS Certification, through an innovative publicity campaign featuring members who have received their certification and the benefits that have accrued to them through certification.

Internally we conducted a training class on how to use Constant Contact to compose and send weekly e-blasts, so that each committee member has the knowledge on how to produce them.

In June we finalized the content for the July 2014 edition of *MetricViews*, and published the edition on July 24. As of this writing we are finalizing the content and layout for the January 2015 edition that promotes the use of Function Point Analysis for Productivity Measurement. And we added a new page to the website, **Beyond *MetricViews*** that provides links to submitted articles that we couldn't get into the current editions.

The CMC has also been working with the Conference and Education Committee to plan a series of taped webinars that cover selected topics discussed in the latest IFPUG book, *The IFPUG Guide to IT and Software Measurement*. We are still working on a schedule, but hope to have some on the air shortly.

We are looking forward to an active 2015!

Functional Sizing Standards Committee

By Dan French, Chair

As the new Chairman for the FSSC, I plan to continue the committee's focus on producing iTips and uTips to help the membership in their practical use of Function Points and expand the use of video iTips. I would also like to have more open and frequent interaction with the members and receive their feedback on what other topics they would like to the committee to address as well as find out how the FSSC can better support them. I would also like to see participation from non-FSSC members in some of the projects the committee works on.

Non-Functional Sizing Standards Committee

By Talmon Ben-Cnaan, Chair

The SNAP method of non-functional sizing continues to evolve globally

In the July 2014 issue of *MetricViews*, we described NFCCS objectives for 2014 and 2015.

This is what was written:

"During the next two years, NFSSC seeks to achieve the following goals:

- Increase the exposure of SNAP to at least 500 active users by October 2014 and 800 active users by October 2015.
- Provide non-functional benchmark.
- Increase the number of certified practitioners worldwide: The US, Latin America, Europe and Asia.
- Build strong relationships with software consumers (mainly governments and corporates), sizing and measurements consultants, and software suppliers."

This is where we are:

- The number of users did not reach our goal of 500, but has grown from less than 300, to over 360.
- NFSCC has started to collect SNAP data. Volunteers have signed confidentiality agreement with us, and we expect more companies to join our effort. We will use this analysis for SNAP improvements and for providing articles/case studies for the benefit of SNAP users.
- We have expanded SNAP presence to more regions of the globe:
    - o Two Certified SNAP Practitioner's exams where conducted in India, one in the US and three in Italy.
    - o In addition, there companies are now licensed to provide is now certified to provide SNAP training: David Consulting Group, Q/P Management Group, Inc. and TI Métricas.
    - o We have started our activities in Japan, together with JFPUG, during a SNAP presentation at the IT Confidence conference in Tokyo, held during October 2014.
- More SNAP practitioners are now certified in the US, Brazil, Spain, Italy and India.
- User's groups are active on LinkedIn and IFPUG/ SNAP interest group.

Function Points and SNAP Points – One Counting Effort.

A white paper, showing the best practice for the counting process (yes, one process!) of both functional and non-functional requirements, will be issued shortly. This white paper is a joint effort of FSSC and NFSSC.

New NFCCS members, new Board liaison – welcome!

And last, a warm welcome to the new NFSSC members and volunteers: George Mitwasi, Julian Gomez, Pablo Soneira, Robert Bell and Saurabh Saxena, who have joined Abinash Sahoo, Charley Tichenor, Jalaja Venkat, Kathy Lamoureaux, Luigi Buglione, Mauricio Aguilar, Roopali Thapar and our new Board Liaison, Dácil Castelo.

We would like to thank Steve Chizar for his contribution and Christine Green, who lead SNAP from its very beginning, making it a new world standard.

International Standards (ISO) Committee

by Carol Dekkers, CFPS, PMP, CMC

You might wonder why we don't always have an update on what your IFPUG ISO Standards Committee has been doing – but the good news is that we're still involved in both the U.S. technical advisory group (TAG) and the international work in progress, and the standards have stabilized.

This is great news for IFPUG and the functional sizing community worldwide because a stable set of function point standards creates a level playing field for comparing projects, doing consistent estimating, and leverage project history. In the past, a lack of consistent and stable standards was an obstacle to the function point adoption.

Our current method, IFPUG 4.3, in particular, is stable and highly usable. Not only is IFPUG 4.3 now an international ISO standard (known as ISO/IEC 20926 IFPUG Functional Size Measurement Method 2009), it is freely available as a publicly available standard.

Benchmarking standards work

Ongoing development of the Project performance benchmarking standards suite (ISO/IEC 29155) is proceeding according to the ISO schedule. The initial framework standards (under the umbrella standard number ISO/IEC 29155 with various parts) are now available for purchase from ISO.

Cloud Computing and NIST work

With the addition of Steve Woodward to the ISO committee, we are looking to focus and potentially redirect some of our ISO involvement into other compatible ISO standards work such as Cloud Computing and other topics. Steve and Carol (with thanks also to Lori Holmes) have brainstormed on some potential areas where IFPUG involvement could help our members and expand our functional size measurement influence. The IFPUG Board is considering our recommendations and we'll report back to the membership through future MetricViews updates.

Current committee membership

Thank you to retiring committee members Mary Bradley and Frank Mazzucco for your years of ISO participation and support, and welcome to Steve Woodward who joins me on the committee.

Wishing everyone a happy and healthy 2015!

Carol Dekkers, ISO committee

Building a Best-in-Class Software Sizing Program in a Large Organization

By M. George Mitwasi, Ph.D., CFPS Fellow, CSP and Santosh Sahoo, CFPS, PMP Optum

Introduction

Knowing the rules for counting function points (FPs) is a pre-requisite for sizing software development projects, but in order to build a successful software sizing program in a large organization, much more needs to be put in place. At Optum, software sizing using FPs stemmed originally from the need to improve the estimation accuracy of software projects and was later also used to measure and improve productivity. Soon after the FP program was established, the volume and complexity of the requests for software sizing increased quickly and demanded a restructuring and re-organization of the approach to ensure the success of the program. This article walks you through the journey Optum went through to build a best-in-class software sizing program that now employs 25 people and analyzes over 1,000 counting requests per month.

Background

Optum is a global team of 65,000 people, working collaboratively across the health system to improve care delivery, quality and cost-effectiveness. Optum Technology is a division of Optum that is responsible for all software development and maintenance, maintains over 1,000 applications, and employs over 15,000 IT professionals.

Consistent with the challenges faced in the software industry as a whole, back in 2009 Optum Technology struggled with the accuracy and timeliness of its software development estimates. As a result, and because of the wide acceptance of IFPUG FPs and the parametric estimation models developed around them, Optum Technology decided to implement an IFPUG FP based parametric estimation program using the SEER® for Software estimation tool. In 2011 the Function Point Center of Excellence (FPCoE) was established and tasked with supporting applications and Enterprise Project Management Office (EPMO) in sizing software projects at the solution and design phases using FPs and provide it to the estimators to use as an input to SEER-SEM.

Executing a Pilot

At the initial phases of the program, and with the help of David Consulting Group, an external consulting firm, Optum conducted a pilot on one application in the beginning of 2011. The team completed the FP baseline count, 8 enhancement project counts for completed projects to be used for calibration, and the SEER-SEM calibration. The pilot was successfully completed within 3 months and demonstrated the viability and suitability of using FP as the basis for a new estimation methodology at Optum. Following the success of the pilot, the estimation and function point programs were officially kicked-off. The scope was to deploy FPs and SEER-SEM by the end of 2013 to about 50 applications that spent over 70% of the total software development budget within the organization.

Challenges

The scope of the work and the challenges that were facing the Function Point Center of Expertise (FPCoE) are summarized in the following points:

1- **Counting at the Project/Application/Release Levels:** In order to provide accurate size and estimates for the project, it was decided that counts will be done at the Project/Application/Release level. Each project impacted from 1 to 30 applications and was deployed over several releases. Furthermore, some applications were composed of multiple boundaries and their baseline and counts had to be tracked separately.

2- **Counting at Different Software Development Lifecycle (SDLC) Phases:** In order to support the estimation and performance analysis goals, counts needed to be done at the Requirements Phase, the Design Phase, and for each Change Request, and at Deployment.

3- **Tracking Effort for Different Types of Activities:** Applications can be impacted in a number of different ways by a project at each release. The impact can be either functional, non-functional, or involve other activities such as analysis and test support for other applications that are not related to the functionality delivered. In order to estimate and assess the performance accurately, the effort for the three types of activities had to be segregated and tracked manually since the time tracking system supported only segregation at the project/application/release levels but not down to the type of activity performed.

4- **The Volume:** For the approximately 50 applications chosen to be part of the program, there can be over 1,000 count requests at the project/application/release/phase levels per month. Although over two thirds of the count requests do not result in a functional size and many of the count sessions are small in nature, they all require some level of analysis, tracking, and reporting.

5- **The Organization Makeup and Size:** The application team members supporting the FP counters have offices in 8 locations across the United States and India, span multiple time-zones, and number in the thousands.

6- **Subject Matter Expert (SME) Availability and Support:** Although the FPCoE had strong upper management backing, SME availability and support were often difficult to come by. As most readers can appreciate, and based on the authors prior experiences, this was not unique to Optum.

7- **Availability of Experienced FP Counters:** The volume of counts the FPCoE had to conduct demanded that we employ a large number of FP counters; however, it was very difficult to source this talent and in particular that there are fewer than 900 registered Certified Function Point Specialists (CFPSs) worldwide.

In order to succeed in meeting and exceeding our customers' needs, the FPCoE had to approach its work in phases, in a systematic and process oriented fashion, and with as much automation as possible. The target was to have most of the applications fully deployed in the counting process by the end of 2013.

First Year Decisions

During 2012 the FPCoE went through a storming phase. The major decisions that were made by the FPCoE and Optum Technology during 2012 are summarized as follows:

- **Using External Help:** Due to the volume of work, the FPCoE engaged the same external consulting firm that supported its pilot to conduct the majority of the baseline counts that were targeted for 2012. The FPCoE team conducted all project counts and later that year, conducted some of the baselines as well.
- **Self-Sufficiency:** One of the requirements the FPCoE had to meet was to become self-sufficient by the end of 2012 and could not utilize external vendors beyond that year.
- **Responsibility for Counting:** Initially, the application team members were trained on FP Counting and were expected to conduct the majority of their counts. However, in order to maintain consistency and accuracy of counts, it was later decided that FP counting would be centralized and conducted by the FPCoE team. Note that all FPCoE counters were and still required to achieve CFPS credentials within 1 year of joining the team.
- **FPCoE Team Make-up:** The majority of the FP Counters were to be part of the off-shore FPCoE team in India and the project management and customer relation activities were to be conducted on-shore.
- **Choice of FP Repository:** In mid-2012 the SCOPE® tool, which is developed by Total Metrics®, was chosen as the repository for all FP Counts mainly due to its ability to define releases and count sessions within releases that can be linked to projects – a feature that was not available in most other tools.
- **Count Preparations:** In order to minimize the impact on SME time, it was decided that when possible, FP Counters would complete draft counts based on available documentation, and follow-up meetings with the SME would be focused on verifying the counts only.
- **Home Grown FP Talent:** Due to the difficulty of finding FP counting talents, the FPCoE decided to develop a rigorous internal FP training program to train new hires with no prior FP counting experience, using the IFPUG Counting Practices Manual (CPM) and the Optum internal guidelines and processes. In fact, the majority of the team members within the FPCoE had joined the program with little or no experience in FPs and the average time for them to achieve the CFPS certification has been less than 6 months.

First Year Outcome

The FPCoE team grew very quickly during its first year of operation from 3 people to 11 people and all became CFPSs by the end of the year. Towards the end of 2012, the FPCoE had become fully independent in its counting activities and had 27 applications deployed and 545 projects counted that had functional size. A few processes, guidelines, training and tools were deployed that year including:

- FP Counting Process that details the process by which we receive count requests, process them, count them and report on them to the internal customers.
- SCOPE Guidelines which is a 50-page document that detailed specific ways to document counts in the SCOPE tool to meet Optum's needs and ensure consistency among counters.
- Internal counting issues and resolutions guidelines that assist FP counters in making counting decisions in situations that are difficult to count.
- SharePoint List that hosts the results of all FP counts conducted and can be shared with FPCoE internal customers.
- Three levels of instructor-led online courses totaling 7-hours and targeted for application team members to educate them on function points and their use within the organization.

Services Provided and Customers Served

The FPCoE provides a number of services to many internal Optum clients. The services include: application baseline counting, baseline approximation, project estimate counts, deployed project counts, release counting, productivity analysis support, defect density analysis support, and training.

(continued on next page)

(continued from page 19)

Customers include the application estimators, project managers, application owners, productivity analysis team, quality analysis teams, and application support teams.

Current Operations

The FPCoE has come a very long way since its inception in 2011. The below histogram depicts the FPCoE sizing activity by month since January 2012. The chart shows activity broken down by Closed Deployed, Closed Solution Estimate (Closed SE), Closed Design Estimate (Closed DE), Closed Counts that did not result in any deliverables sized (Closed Non-Analysis & Development (A&D)), Cancelled counts, and Open Counts that were due that month but spilled over to the next month.

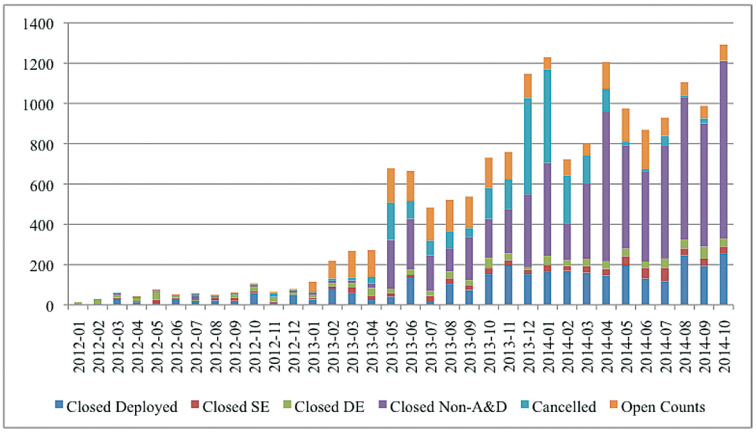


Figure 1: FPCoE Sizing Activity since January 2012

The FPCoE experienced significant growth and stability in its sizing activity over 3 years. In order to accomplish this, a great deal of organization, process improvement and personnel growth had to be put in place. The team is now made up of 25 professionals serving in many different capacities. The team supports project sizing for 54 applications and analyzes over 1,000 projects per month with around 300 of them that deliver functionality. Most team members are involved not only in sizing projects but also in other aspects of the FPCoE operations.

The team is managed as a matrix organization broken into 7 functional areas. The following are the functional areas along with their goals and accomplishments:

- **Operations:** Ensures that counts are conducted on time, with quality, and meet the service level agreements (SLAs) with our clients. It also reports on operational metrics on a weekly and monthly basis. As of October 2014, over 8,000 count requests were analyzed for the year including 2,577 projects with functional deliverables. Also, 91% of counts were conducted within the due date which exceeds our target of 80%.
- **Continuous Process Improvement:** Identifies areas for improvement, defines, deploys and maintains procedures for the organization, and ensures procedures are followed consistently. There are currently over 10 procedures defined with numerous supporting job-aids that detail exactly how our operations are run. Example procedures include:
    - o Baseline Count Procedure
    - o Estimate Count Procedure
    - o Deployed Project Count Procedure
    - o Deployed Release Count Procedure
    - o FP Count Issue/Resolution Procedure
    - o New Application Deployment Procedure
    - o Count Review Procedure
    - o Continuous Improvement Procedure
    - o Process Development and Deployment Procedure.
- An online tool was developed to accept improvement ideas and to track these ideas to closure. Bi-weekly meetings are held to review the process improvement ideas and their implementation progress.
- **Core-Competency:** Trains new employees on function points and FPCoE processes, ensures that new employees achieve CFPS status within 1 year of joining the team, maintains and trains on other certifications including Certified Software Non-functional Assessment Process (SNAP) Practitioner (CSP) and healthcare related certifications. Currently there are 18 CFPSs and 7 CSPs in the team with plans to have the majority of the team members certified in both areas.
- **Automation:** Responsible for identifying work activities that can be automated to improve efficiency and accuracy of the work done by the team. So far, this team has developed and deployed the following (1) an online portal to receive estimate count requests from clients and manage the workflow of these requests until completion, (2) a tool to track the progress of sizing all projects at each release for applications in our scope and to issue alerts when delays are encountered, and (3) a tool to validate the counts done in the SCOPE tool against internal guidelines and generate complex project history count reports that include different views of the project and the size of functional volatility throughout the SDLC.
- **Deployment & Customer Support:** Ensures smooth and timely deployment of new applications in function points starting with receiving the intake forms to conduct the baseline until full deployment into the FPCoE processes. This area also handles ongoing communication with the customers and resolving any issues.
- **Communication:** Maintains ongoing communication to our customer base to inform them of changes in processes or deployment of new techniques such as SNAP counting.
- **External Training:** Offers monthly instructor led online training to our customers on function points and their role within Optum.

Summary

The support of Optum's upper management and the level of commitment and enthusiasm found within the team played a major role in the success of the FPCoE as a whole. As daunting as the goals set for the FPCoE were, with the backing of upper management, the team came together to achieve what seemed impossible on many occasions. With less than 3 years into operations, the team has baselined 54 applications with 115,000 FPs and analyzed over 11,000 projects including over 4,450 projects with delivered functionality totaling 128,000 function points. Operations are running very efficiently with weekly and monthly dashboards that monitor demand, completed counts, backlog, SLA compliance levels, and statuses at every level of the process.

The FPCoE team has helped Optum Technology implement a successful estimation program that resulted in improving the estimate accuracy and timeliness many folds. It also helped setup a productivity measurements program that supports decision making at the highest level of the organization that improved efficiency and time to market of software delivery. The FPCoE was fortunate to have upper management that understood the value of metrics and had prior successes using function points as a size for software.

The team continues to improve on many levels and has many goals in the areas of automation, processes, and operations for this year and beyond. The team is currently deploying SNAP counting within Optum and we expect to have it operational in the spring of 2015.

June ICEAA Conference

What do Agile, Data Conversion and Real-Time Data Sharing have in common? These were the topics of papers published by the FSSC over the past 6 months. The Agile white paper, which is available in English and Portuguese, has proved to be one of the most popular items in the IFPUG on-line store.

As part of the IFPUG and ICEAA partnership, the FSSC again held their annual committee meeting at the International Cost Estimating & Analysis Association (ICEAA) annual conference in Denver, CO. FSSC Members discussed and reviewed new iTips, uTips and white papers, which will soon be published, as well as presented papers on the conference's Information Technology track. FSSC members also manned the IFPUG booth at the ICEAA conference, spreading the word about IFPUG to the 350+ attendees.

Look for new publications on Real-Time Data Response, Derived Data, Estimating and Data Analytics in the next 6 months.

IFPUG Board of Directors

Kriste Lawrence, President
Hewlett-Packard
kriste.lawrence@hp.com

Tom Cagley, Vice President
David Consulting Group
tcagley@earthlink.net

Debra Maschino, Treasurer
NASCO
debra.maschino@nasco.com

Joe Schofield, Immediate Past President
joescho@joejr.com

Mauricio Aguiar, Secretary, Director of Communications and Marketing
TI Metricas
mauricio@metricas.com.br

Luigi Buglione, Director of Education & Conference Services
Engineering.IT SpA
luigi.buglione@eng.it

Dácil Castelo, Director of Sizing Standards
Leda-mc
dcastelo@leda-mc.com

Christine Green, Director of Applied Programs
Hewlett-Packard
christine.green@hp.com

Pierre Almén, Director of International & Organizational Affairs
ImproveIT
Pierrea@coolmail.se

Committee Rosters

Certification Committee
- Gregory Allen, Pershing – ***Chair***
- Mahesh Ananthakrishnan, Cognizant Technology Solutions – ***Vice Chair***
- Jim McCauley
- Joanna Soles, WellPoint
- Teresa Beraldo

Communications and Marketing Committee
- Walter David Thompson, Blue Pine Solution Centre – ***Chair***
- Antonio Ferre Albero, GFT IT Consulting
- David Herron, David Consulting Group
- Stephen Neuendorf, David Consulting Group
- Paul Radford, Charismatek Software Metrics
- Justin Keswick, Bank of Montreal

Conference and Education Committee
- Peter Thomas, Steria – ***Chair***
- Antonio Ferre Albero, GFT IT Consulting
- Toni Ramos, David Consulting Group
- Thiago Silva Da Conceicao

Functional Sizing Standards Committee
- Daniel Bradford French, Cobec Consulting – ***Chair***
- Bonnie Brown, Hewlett-Packard – ***Vice Chair***
- Diana Baklizky, TI Metricas
- E. Jay Fischer, JRF Consulting
- Steve Keim, David Consulting Group
- Tammy Preuss, AT&T
- Roopali Thapar, IBM
- Peter Thomas, Steria
- Adri Timp, Equens
- Charles Wesolowski

International Membership Committee
- Robyn Lawrie – ***Chair***
- Marcio Silveira, HP
- Gianfranco Lanza, CSI Piedmonte

ISO Committee
- Carol Dekkers, Quality Plus Technologies, Inc. – ***Chair***
- Mary Bradley, MSB2
- Steve Woodward, Cloud Perspectives

Non-Functional Sizing Standards Committee
- Talmon Ben-Cnaan, Amdocs – ***Chair***
- Kathy Lamoureaux, Aetna Inc. – ***Vice Chair***
- Roopali Anand, IBM
- Abinash Sahoo
- Julian Gomez, Sopra Group Informatica S.A.
- Mousa George Mitwasi, Optum
- Dr. Charley Tichenor, Defense Security Cooperation Agency
- Jalaja Venkat, iGATE Global Solutions

Congratulations to these NEW and Extended Certified Function Point Specialists!

Cleriston Alvarenga
Stefanini Consultoria E Assessoria Em Informatica

Elson Alves Junior
APF Metricas - Consultoria Em Tecnicas De Estimativas De Software Ltda

Ana Paula Batilani Bueno

Massimo Beretta
SOGEI

Madhab Birua
IBM

MarianaBonfim Banestes
S/A Banco Do Estado Do Espirito Santo

Itala Borges Goncalves
BANCO BRADESCO S/A

Manuel Buitrago Bravo
LEDA Consulting, S.L.

Fiorella Caccioppola
SOGEI

Stefano Canzian
Sirti S.p.A.

Luca Carissimi
DDWAY S.R.L.

Antonio Carlos Fernandes Duarte Junior
BANCO BRADESCO S/A

Patrizia Celi
Engineering Ingegneria Informatica SpA

Ricardo Chavez Arellano
IBM

Geisa Correia Pinto
Solutis Technologias

Dario Giuseppe Costantino
Pride S.p.A.

Arildo Flavio Jose Da Silva
BANCO BRADESCO S/A

Danilo D'Adamo
Soft Strategy S.p.A.

Viviana D'Alba
Soft Strategy S.p.A.

Barbara De Marco
SOGEI

Giovanni De Nicola
HP

Gabriele De Vito

Adam Dunn
HP

Paramita Dutta Mandal
Tata Consultancy Services Ltd.

Somayajulu Evani
Optum

Douglas Ferreira
T-Systems Do Brasil Ltda.

Willy Ferreiro

Vincenzo Garau
SOGEI

Giovanni Gea
Engineering Ingegneria Informatica SpA

Domenico Geluardi
SOGEI

Alessandro Giangreco
Sirti S.p.A.

Dayana Gomes
BANCO BRADESCO S/A

Suman Grace
IBM

James Jandebeur
David Consulting Group

Naveen Kapu
IBM

Sangeetha Kashyap
IBM

Leandro Kirsch

Ayala Leal

Solutis Technologias
Sangwon Lee

Ailton Lima
BANCO BRADESCO S/A

Magali Lima
CPM Braxis S.A.

Victor Hugo Lucio

Maria Rita Mangia
Engineering Ingegneria Informatica SpA

Ananthavalli Manivannan
IBM

Krupananda Mannekunta
Quality Management Support Services

Viviana Mantecon Pereira de Souza

Gianluca Martini
SOGEI

Reji Mathai
Mastek LTD

Remya Menon
IBM

Fernanda Miranda
Todo Solucoes em Tecnologia SA

Sandro Shueo Mizushima Chacolla
BANCO BRADESCO S/A

Marcio Monteiro

Ashok Moolinti
Accenture

Francesco Mungiguerra
DDWAY S.R.L.

Maria Cristina Pantini
SOGEI

Angelici Paolo
SOGEI

Norina Paradisi
DDWAY S.R.L.

Quezia Paula
TI Metricas

Giampiero Pianese
Engineering Ingegneria Informatica SpA

Kunal Punjabi
Capgemini Belgium NV/SA

Francesca Quai
SOGEI

Francisco Queiroz Lima
VTI Serviços Comércio e Projetos de Modernização e Gestão Corporativa

Chepuri Raju
Optum

Caroline Ramos
Solutis Technologias

Rodrigo Rodrigues
Solutis Technologias

Supritha Rao
Infosys Technologies Limited

Vinicius Reis
Datamec SA

Susana Relva
HP

Carlos Roberto Barbosa Junior
BANCO BRADESCO S/A

Rodrigo Rodrigues

Lara Romano
SOGEI

Felice Daniele Russo

Gildson S C Junior
BANCO BRADESCO S/A

Fabiola Sa
Indra Brasil Soluções e Serviços Tecnológicos S/A

Venkata Reddy Sadu

Tiago Santos Damasceno
BANCO BRADESCO S/A

Samuel Santos

Neha Saxena
IBM

Alex Augusto Senra Oliveira
Tata Consultancy Services Ltd.

Nidhi Sharma
Optum

Fabricia Silva Pires de Sousa

(continued on next page)

(continued from page 29)

Angelo Silvestri
Engineering Ingegneria Informatica SpA

Connie Smith
Computer Sciences Corporation

Thais Soares da Silva

Anderson Souza
Banco Nacional De Desenvolvimenio Economico E Social

Simone Souza Araujo
CPM Braxis S.A.

Dayanne Souza

Uma Subbaraya
IBM

Priyanka Vasireddi
Optum

Monisha Vinod
IBM

Tamilyn Young
BANCO BRADESCO S/A

Congratulations to these NEW Certified Function Point Practitioners!

Thillai Abirami
IBM

Danielli Astolphi
BANCO BRADESCO S/A

Lorenzo Bianchi
SOGEI

Riccardo Bisini
SOGEI

Eli Conforte
BANCO BRADESCO S/A

Fausta Cosenza
SOGEI

Marco Di Mauro
SOGEI

Caroline Domiciano
FATTO Consultoria E Sistemas

Josseli dos Reis de Melo

Thamires Ibanez Martines
T-Systems Do Brasil Ltda.

Tadashi Kotani

Thomas Kovats

Booz Allen Hamilton

Alessandro Mei

Maria Motta
SOGEI

Thiago Oliveira

Fabiane Otero
Hexa Solution Servicos de Informatica Ltda

Andrea Pugini
SOGEI

Mateus Rodrigues

Rodrigo Rodrigues

Soujanya Sambu
IBM

Fabricia Silva Pires de Sousa

Fernando Silva Sales
BANCO BRADESCO S/A

Ewerton Soares Concalves
BANCO BRADESCO S/A

João Sousa

Cui Tao
ICBC SDC

Valeria Torsello
Convergent Technologies Partners, S.p.A.

Adriana Trentini
MI Montreal Informatica SA

Priyanka Vasireddi
Optum

Congratulations to these NEW Certified SNAP Practitioners!

Mohan Babu T
Optum

Mandeep Batra
Optum

Monika Chopra
Optum

Roberto D'Angelo
Engineering Ing. Ing. Spa

Sheila Dennis
David Consulting Group

Jaya Goindani
Optum

Alfredo Lamantea
Engineering Ingegneria Informatica SpA

David Lambert
David Consulting Group

Sridhar Maheswaram
Optum

Maria Rita Mangia
Engineering Ingegneria Informatica SpA

Mousa George Mitwasi
UnitedHealth Group IT

Kaustubh Pargaonkar
Optum

Joanne Penn
UnitedHealth Group IT

Louis Pron

Esteban Sanchez
Galorath Incorporated

Nidhi Sharma
Optum

Rashmi Sinha
UnitedHealth Group IT

Roopali Thapar
IBM

Mayura Vijapur
UnitedHealth Group IT

Congratulations for 20 years of CFPS Certified Function Point Fellows!

Fall 2014

Loredana Fallicciardi,
DDWAY S.R.L.

Steve Neuendorf,
David Consulting Group

Spring 2014

Mary Dale,
Q/P Management Group, Inc.

Roger Heller,
Q/P Management Group, Inc.

Debra Maschino,
NASCO

Mousa George Mitwasi,
Optum

Bruce Paynter,
BNB Software Quality Management

Bruce Rogora,
Pershing, LLC

Joanne Soles,
WellPoint

Andrew Sanchez

Steve Woodward,
Cloud Perspectives

Certification Matters!

"My CFPS was a critical pillar in my career development. It provided the credentials I needed to build a software sizing capability for the metrics program in an 800 person healthcare IT organization of a large corporation. Size was a needed metric used to provide top down estimates to project managers and productivity data to the organization."

Gary Huber

Schedule your CFPS exam at www.Prometric.com/IFPUG !
The CSP exam will be held April 29, 2015 at the Charlotte Sheraton Airport Hotel in Charlotte, North Carolina, USA. Register today at www.ifpug.org!

Visit the IFPUG Website at www.ifpug.org

ISMA[10] CONFERENCE REGISTRATION HAS BEGUN

Visit UPCOMING EVENTS to register now.

Updating your information is now easier with the Members' Services Area on the website. Visit today to update your profile so you won't miss out on upcoming news and events.

Publications can be ordered through the Online Store featured on the IFPUG website.

Many items are now available for immediate download.

ISMA[12] October Conference planning is underway and information will be on the IFPUG website in the future.

CHECK IT OUT!

We want to know... send your comments on the new website to ifpug@ifpug.org

THANK YOU FOR YOUR MEMBERSHIP!

191 Clarksville Road
Princeton Junction, NJ 08550
USA

FIRST-CLASS MAIL
U.S. POSTAGE
PAID
CINNAMINSON, NJ
PERMIT NO. 579

ISMA10 Charlotte, North Carolina, USA

April 30th 2015

"Creating Value from Measurement"

This tenth edition of the IFPUG ISMA Conference will provide a forum for practitioners and researchers to discuss the most recent advances in planning and sustaining measurement programs from both practical and theoretical perspectives. Invited to share innovative ideas, experiences, and concerns are professionals responsible for, involved in, or interested in software measurement within this scope.

The week begins with the Applying Function Points to Emerging Business Technologies and the SNAP (Software Non-functional Assessment Practices workshops. The CSP (Certified SNAP Practitioner) exam will be held following the workshops for your convenience. Other events will be scheduled on Wednesday for those not taking the exam. The week culminates with Conference Day!

Check the IFPUG website www.ifpug.org for details on presentations and registration information.

This is an incredible value for IFPUG members – you'll love the pricing, so be sure to check it out!