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MetricViews



**SIZING UP
AGILE**

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IN THIS EDITION

We have a number of excellent articles in this edition of *MetricViews*.

In our lead article, Antonio Ferre discusses the difference between product metrics and project management metrics and shares with us his views on how Agile and Functional size can coexist.

Ian Brown is next up with some thoughts on the pros and cons of Agile story points and then intrigues us with the introduction of a new Agile sizing measure called Agilon.

Steve Woodward always has something interesting to say and his article in this edition is no exception. Read about his views on how FPA fits with today's new technologies.

Joe Schofield entertains us with a discussion on measurements in an Agile world. Joe has provided an added bonus with a wonderful list of references.

David Herron raises the question, are Function Points still relevant? We better hope they are! Find out what David has to say about this topic.

Carol Dekkers looks at how to change the world to be more open to Function Points (and measurement) in "If I was queen of the (measurement) world."

Sheila Dennis gets right to the point in her article and tells us how to maximize function point counting processes and resources.

We thank all these authors for their contribution.

And be sure to read the two additional pieces on our first ever Honorary Fellows and a recap of ISMA 14 and 15.

Enjoy! ■



**Mauricio
Aguiar**

Message from the President

As I start my second term as IFPUG President I think of the differences and similarities between 2005, when I first became President, and now. Even though there has been a lot of progress in STEM (science, technology, engineering, and mathematics) in the last ten years, certain things have remained the same. That is not surprising. One of my favorite composers, Paul Simon, writes: "After changes upon changes we are more or less the same." (The Boxer, 1969). Yes, I believe many old ideas are still valuable, while some new ideas will not stand the test of time.

One of the ideas that has stood the test of time is Function Point Analysis (FPA). Even though we have recently celebrated IFPUG's 30th anniversary, FPA is as good as new. This should not be surprising - many other older human creations are still a part of our lives. Being an engineer, the first example that comes to my mind is algebra. According to Dirk Struik in "A Concise History of Mathematics" (1987), the roots of algebra can be traced to the ancient Babylonians, circa 1,800 BC. Even though algebra has been enhanced over

centuries, it is still around and useful. The same can be said of FPA. Even though the 4.3.1 version of the Counting Practices Manual has incorporated several enhancements since the original Albrecht method, it is still FPA.

Another concept that is still with us is “money”, or currency. According to Wikipedia (see “Money”) the first usage of the term came from Mesopotamia circa 3,000 BC. Even though we now have computer-based money (e.g., “bitcoin”) the idea of having something that can be exchanged for goods is still the same.

While some ideas stay with us - like algebra, money, and FPA - others fade away after some time. Some of you may remember Betamax, Structured Analysis, floppy disks and other once great ideas that have virtually disappeared. My point is that one may be misled by the initial excitement about a new idea that may in fact be a short-lived one. It pays to be neutral and analyze each idea independently of its “age”.

As long as people do business and use money, it will be relevant to predict how much an organization will spend on a project. It will also be important to know the costs of such projects and whether the benefits exceed the costs. Ideas that obscure the importance of estimates, costs, and profits are either going to change or disappear. That is why I see FPA as a technique that will remain relevant for a long, long time. ■

Sincerely,

Mauricio Aguiar
IFPUG President



David Herron

From the Editor's Desk

The mission of the International Function Point Users Group (IFPUG) is to support, promote and advance the use of Function Points (FP) and functional measurement. As a user group it has performed admirably in supporting the user group community. Significant progress has been made over the years in clarifying the rules and guidelines that govern the practical application of FPs. I speak from experience having been involved with IFPUG since the early 90s and I can tell you that the counting practices manual back then was disorganized, cumbersome and poorly written. The ongoing continued clarification of counting rules and guidelines has made counting less of an art form. While we may not all agree with all of the

rules, at a minimum they allow for consistency in how features and functions are counted. Additionally, the user group has provided its audience with user conferences, skill and technical based classes and documented first person accounts of experiences, successes and short comings in the application of FPs. However, through it all there has been a constant challenge facing the IFPUG organization and FP users alike.

The challenge I am referring to is the marketing and effective promotion of FPs. Many of us have experienced the frustration of attempting to ‘sell’ FPs to our management or to a customer. Often, the first barrier we face is an audience that is uneducated in the uses and benefits of FPs. It is easy enough to provide that basic education and we are willing to do so. Once educated, management begins to understand that the benefits that come with using FPs requires an additional investment in time and money. In this world of quick hits and instant gratification, management is often reluctant to take on that challenge and the required commitment to make FPs succeed. It can be a frustrating experience when you know you have a solution to a problem that management is not willing to face.

The marketing and selling of FPs is an ongoing challenge for all of us. Clearly IFPUG plays an important role in the marketing and selling of FPs. More to the point, they have a responsibility to their user community and the software community at large to do what's necessary to advance the use of FPs and more broadly the use of measurement tools and techniques that advance the development and deployment of software solutions. IFPUG has indeed taken on this responsibility in a variety of ways. Of course, there are those that think IFPUG can do more and there is no doubt that they need to be continuously challenged to do better. But as a user group, we must acknowledge that we share in the responsibility of promoting and advancing functional metrics and software measurement. We need to share and promote our success stories, to write articles, to make presentations at a conference, to share your knowledge with others, and to get your management to write a testimonial. We need to actively participate in the advancement of FPs and functional measurement.

On a special note and in line with the topic of this editorial, the IFPUG community wishes to say a big “thank you” to Paul Radford for his years of service as editor of *MetricViews*. ■

Sincerely,

David Herron
Communications and Marketing Committee

MetricViews

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AGILE AND FUNCTIONAL SIZE:

The Perfect Complement to Provide Strategic Value

by Antonio Ferre Alberio



The software industry is associated with the most innovative techniques and technologies, but at the end it is an artisan art activity. Bill Gates once said, “Software is a great combination between artistry and engineering.” Two software solutions with the same functionalities can externally be similar, but internally can be very different; for sure that one of them has a better performance, is easier to maintain in the future, provides the same functionalities with less code, has less error risks and has been built in a more clever way.

It will depend, in part, on the technical knowledge of the teams involved in creating the solution, on the quality and clarity of the requirements, and on the two magic words that are involved in creating a technical IT solution as in managing IT projects: “common sense” applied to all situations. So simple and sometimes so difficult to accomplish, especially when decisions or actions are not taken from the technical point of view, conflicts of interest exist, lack of knowledge, and a set of grey concepts that can contribute in transforming brilliant IT products (internal or external) into mediocre solutions.

It is fascinating, and at the same time essential, to add the word excellence: “common sense excellence.” To give the best quality to the customer, the best product, and in fact, that the customer (so external if you are an IT company, or your company if you are an IT department) receives the greatest value from an IT solution and at the best price are strategic objectives that might be specific and measurable, among others (SMART goals: Specific, Measurable, Achievable, Relevant, and Time bound).

It is essential to always have in mind that Information Technology must provide the highest business value and competitive differentiators to companies. IT projects are just time temporal things to create, maintain or enhance products. On the other hand, IT products can provide “strategic value” to the business, or just complete processes faster or cheaper. Measure, monitor and to have concrete and clear targets of this value might be a must.

Agile: a new “springtime” in project management, born in a ski resort

In mid-February of 2001, in the Snowbird ski resort, Utah, USA, seventeen software development thinkers created the “Manifesto for Agile Software Development”, and at the end of this same year the Agile Alliance was created as a non-profit organization with the aim to promote the Agile software development based on the Agile Manifesto.

This Agile Manifesto, as principles or commandments, is just common sense and excellence, perhaps a few lost for someone in the Project Management world, moving from the traditional waterfall concept to an interaction model. This well-known Manifesto includes twelve high level guidelines that are essential in providing value to the customer (“our highest priority is to satisfy the customer through early and continuous delivery of valuable software”), to enforce the importance and to correctly manage the requirements and its changes so that the product fits real customer needs (“Welcome changing requirements, even late in development”, “Deliver working software frequently”), to work correctly (“Business people and developers must work together daily throughout the project”, “Build projects around motivated individuals”), to have commitment in all levels (“The sponsors, developers, and users should be able to maintain a constant pace indefinitely”), the importance of the “Continuous attention to technical excellence and good design”, and the importance of “Simplicity, the art of maximizing the amount of work not done.”

Perhaps those words are nothing new looking through the “common sense excellence” glasses, but sometimes it is important to remind us of a set of important things in order to always have the polar north in view.

It is certain that almost all MetricViews readers are familiar with the “CHAOS report” by the Standish Group. This interesting report has been produced yearly for more than 20 years and has analyzed thousands of IT projects around the world, from small to extremely big ones. The main focus of this periodical report is to analyze the reasons for why projects succeed and fail.

We can say that history tends to repeat itself. In the most recent report, the three major reasons of project success are user involvement, executive sponsorship, and emotional maturity (team’s behaviors, skills, etc.) Turning back the clock two decades, the reasons in the nineties were user involvement, executive management support, and a clear statement of requirements. In the opposite side, the top factors of projects cancelled were incomplete requirements, lack of user involvement, and lack of resources. The actual technology, apart from mainframe aspects, is far from the one existing twenty years ago, but the main causes of project success and failure are almost the same.

A clear, but not new, finding from this report is that the rate of IT projects cancelled, completed but over-budget, delayed, or with fewer functionalities than expected is much higher in very large or large IT projects than in small ones. The IT Project success is inversely proportional to the project size. Small projects usually are associated with the word “success” and on the opposite side extremely large projects are closer to the word “cancelled.” We could say that the Agile Manifesto and the CHAOS report have a clear traceability. This is one of the “dividing to rule” keys of the Agile: break projects into small parts of user functionalities (user stories), prioritize them, and deliver them in short time and regularly (iterations).

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Another finding in recent years is that the percentage of successful projects in Agile is much higher than in Waterfall projects.

There is no doubt that the “Agile” concept brought a springtime in the project management area and in a few years has changed how IT projects are managed.

Project, Product, Effort and Size

It is extremely important to separate the concepts “project” and “product” and to manage and measure them correctly. This simple idea is sometimes far from the common practice in small companies as in big ones; it is not uncommon to see this project concept as an isolated concept in which the IT product created or enhanced is not measured; all the measures are focused only on the project or even on the contract concept. The same software solution, product or enhancement can be created under different contract types, with a waterfall methodology approach or with Agile, in small iterations where the customer can see and check results in a short time period. But in the end, in waterfall, in Agile, in a fixed price contract, in a time and material approach, in one big project or divided in dozens of small projects, or under much more models, an IT software product will be created. This software product will provide a value to the company and will have a concrete cost (regardless methodology use, financial contract, number of contracts, number of providers for big projects, or number of projects).

If it is essential to distinguish between product and

project as two completely different things, it is not less important to distinguish between effort (time) and size (functionality provided to the customer) and that nobody falls into the trap -perhaps the less familiar in those topics- that more effort is equivalent to more size or vice-versa as a standard rule; it could be or it could not be. Anyway, it is curious: I have not seen any project that does not manage the “effort” (days, months, hours) or the “cost”, but I have seen too many projects where the “size” is omitted.

Story Points are the most used method to calculate the effort to develop a story: the amount of work to do, complexity, and risk or uncertainty in this work, but it is important to take into account that it is an arbitrary measure. We can say that two different teams, even in the same company, can arrive at two different number of Story Points because it can be very easy for one to do something and for others it can be extremely complex. This metric provides an isolate help for the estimation and planning process, for tracking stories, and for future projections, but not much more out of a story perspective.

Based on the Capers Jones “Thirteen software metrics criteria” idea, Story Points meet only 4 of 13 criteria: they are not standardized (every story is different), they are highly ambiguous, they do not have adequate published data, they do not have tools available for new projects nor for legacy projects, they do not have conversion rules for related metrics, they cannot deal with all deliverables, they do not support all kinds of software, and they do not support reusable artifacts. The most typical Agile metrics fit only four of the thirteen criteria.

Agile metrics, and even the traditional project metrics, might open the doors to the product concept perspective and measure it; measure that will be taken as base for the most strategic metrics. If this is not done, all the subsequent metrics will be arbitrary ad hoc numbers. In fact, a same IT product, regardless of whether it has been built using an Agile or waterfall approach, will have the same size. The method used to manage the project, or the contract type, are just mechanisms to create products or to enhance existing ones. With standard worldwide metrics, we can compare even in a same box products built using Agile and products created using other methods or contract types.

The perfect coexistence: Agile and Functional Size

The meaning of the noun “complement” is something that completes or makes perfect. The metric “Application Size”, using ISO recognized and standard methods, is the perfect and necessary complement to the Agile metrics: here is the magic combination between product metrics and project management metrics; In fact, the customer receives an IT product, not a project. We, as customers, when buying a supermarket product, for example, we analyze (or have

analyzed previously because we are users of this product) how is the product, the quantity that we receive, its quality, the price and other factors such as the brand reputation, but by general rule we are not interested (and even it is a black box for us) in how the company manages internal projects, the methodology, the tools or the machinery used to create this product. As a customer, we put the focus basically in the product that we receive and the price. Even more, we compare the price per kilo or liter, for helping to compare products based on size. The same thing generally happens when we, for example, buy some concrete standard software. Then, why as the user or customer we put so much emphasis in how the IT product is built from the project management perspective and the product itself is often not measured?

The standard size is measured using FSM (Functional Size Measurement) ISO/IEC recognized methods, and IFPUG Functional Size is considered the most worldwide used and at the same time the father of other standard ones. But it is interesting to differentiate between ISO/IEC worldwide recognized methods: IFPUG (International Function Point Users Group), FISMA (Finnish Software Measurement Association), Nesma (Nederlandse Software Metrieken Associatie), COSMIC (Common Software Measurement International Consortium), and Mk II (UK Software Metrics Association) that can be viewed as competitors or rivals but in fact they have strong links and cooperation to bring insights and support to the IT management and projects world, sponsored by non-profit organizations, and other not standard methods created by private companies. We can say that as more used and universal is the method we use much more better for reference and comparisons purposes, for example.

With the usage of these product metrics, it bypasses the project concept and the product itself can be measured and can be compared (without taking into account the words Agile, Waterfall, Incremental, etc.) internally, externally, and with a set of worldwide standard repositories. Perhaps in the case of Agile, so in waterfall, different projects and stories will be converted into a product. By combining project and product information, we will have fascinating information and exciting conclusions. Here is where takes more impor-

tance the word “product” than “project” from the strategic, product owner, or C-level executive point of view. What is the product that I receive and what is its cost?

Perhaps there is a perception that Agile project metrics have its own rhythm and purpose, far different than the traditional concepts, estimation process and measures, and even sometimes there is an apparent, or less apparent, conflict between most classical project IT management styles and new ones; dif-

ferent people tries to defend positions, specialties, sometimes for technical and common sense reasons but perhaps other times with just personal, group, or team profit reasons.

It is essential that the work produced was measured; so, its quality, productivity and price, as mentioned, independently of how the project or projects to build the project have been managed internally. Agile must not be seen as an ecosystem, but as an interesting tool to build products with a more effective way of applying the Agile Manifesto, a synonym for common sense in managing projects. ■

About the author:

Antonio Ferre Albero (Valencia, Spain) has more than 30 years of experience in Information Technology, project management and metrics for private companies, government, and large IT companies. He is CFPS accredited, has been member of different IFPUG committees for years and is currently the IFPUG CMC chair.

Antonio is working as Project Manager at GFT, European company with offices in 11 countries focused mainly on innovative IT solutions. He specializes in a variety of field disciplines including project management, quality and CMMI, metrics, functional size and function points, productivity, benchmarking, estimation processes, technology strategies, Db2, databases and big systems. As senior technologist and project management passionate, he applies best practices to insure IT helps organizations and their employees. Antonio's technical articles have been published many times in newspapers and other print publications.



Agile Estimation

– What's the Point?

by Ian Brown

Agile is at the forefront of many software development discussions these days. Everyone is asking for it, everyone wants to be Agile. At the same time, there is quite a bit of misunderstanding and misinformation about how Agile works in practice, especially when it comes to estimation. I've seen situations where customers ask for organizational velocity, average velocity, or similar metrics for contractual reasons. These requests are problematic and can lead to poorly informed decisions.

In other situations, estimation of software development effort and cost must be done at the macro level to create a project budget or a proposal bid, which is very difficult to do with most Agile estimation techniques. This article highlights Agile estimation principles, discuss where they work, and note where some challenges arise. Then we can discuss another estimation approach that can help overcome some of these challenges.

Two Estimation Maxims

In my two decades of experience in estimating software development projects, I have learned that two maxims are critical.

1. Any approach to estimation **MUST** enable communication when changes to a project can possibly impact cost and

schedule of delivery. Unless you've got unlimited budget and no time constraints, you must be able to explain the cost and schedule impacts of changes to project requirements and/or development. Communication, expectation management, and customer buy-in are critical to project success.

2. Size matters. Software estimates need to be based on some sort of sizing unit. It's an industry best practice that too often gets ignored or overlooked. Estimating in level of effort (hours), although widely practiced, does not enable effective communication. Hours is **NOT** a unit of size. For example, let's estimate the trip from Baltimore, Maryland to Washington, DC. I estimate an hour and a half, but you say it should only take an hour. How do we reconcile that? We really cannot. It's highly dependent on the route, our speed, traffic, weather conditions, etc. But if we frame the discussion in "miles," then we have a common unit of measure with which to have an informed discussion.

"Typical" Agile Estimation

"Typical" Agile estimation doesn't exist. The Agile manifesto values individuals and interactions over processes and tools. The twelve principals encourage Agile teams to reflect on how to become more effective, then to tune and adjust its behavior accordingly – which applies directly to estimation practices.

Agile estimation cannot be defined by a specific approach, technique, or tool.

Two key concepts, however, are consistent across Agile estimation methods. First, estimation is a collaborative activity. Teams participate in estimation and planning activities together so many perspectives and experiences can be considered. Second, estimates are iterative. Each additional iteration is informed by experience, lessons learned, and information gleaned from the previous sprint.

We can't cover all Agile estimation techniques in a single article, so let's focus on one approach that is widely used.

Agile Estimation with Story Points

Story point estimation starts with user stories – short descriptions of a desired function written from an end-user perspective. For example, “As a user of this system, I want X feature so that I can accomplish Y.” User stories determine what functionality will be built. Product owners capture requirements from the business/customer then work with Agile teams to develop user stories and prioritize. Agile teams assign story points sizes to user stories to plan and deliver these priorities.



The Agile team selects what is called a “reference story” and determine the point value of that story. All other stories are evaluated against that reference. No “standards” exist for story points weighting. They are determined on a team-by-team basis. For example, say we want to estimate the size of a set of vehicles. The table below demonstrates the relative sizing that two different teams might come up with.

Vehicle	Point Size
Honda (Reference)	5
Cadillac	8
Smart Car	2
Ford Pickup	13
Motorcycle	1
Semi-Truck	21
Toyota (Reference)	7
School Bus	30
Minivan	10
Chevy Pickup	14
Fiat	3
Hummer Stretch Limo	20



Neither one of these is wrong, assuming that the teams collaboratively developed the weighting. The key point of this illustration is that story point values are team-specific and typically evolve as the team works together over time. No two teams are going to define story points in the same way. Size comparisons between two teams is an egregious error.

This type of estimation approach works well for a lot of Agile teams. Over time they can become very good at predicting sprints. Data feedback from the previous sprint during retrospectives provides the opportunity for immediate corrections. The relative nature of story points allows teams to tailor and calibrate the size unit. Collaboration and iteration with all stakeholders encourages communication and expectation management.

In some situations, however, story points and velocity do not work well and are insufficient to meet stakeholder needs.

- **Initial estimates/project budgets.** Story point sizing cannot be applied effectively to estimate a budget early in a project life cycle.
- **New Agile development team.** With a new team, actual velocity is unknown. Agile teams usually take a few cycles to normalize their estimation techniques. Agile estimation resets any time something changes on a project, even with the loss of a single team member.
- **Portfolio management.** Effective IT productivity metrics require a standardized measure of software size. As we've discussed, story points are completely inappropriate for this. This applies to competitive bidding for development projects as well. Trying to compare bids that have completely different sizing metrics is simply not possible.

Other situations and circumstances can lead to less-than-optimal application of story point estimation methods.

- Using points as a proxy for hours
- Treating velocity as productivity
- Defining story points differently between customers and the team

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A Supplemental (Alternative?) Approach: Function Points

Given this range of challenges, I'd like to explore some ideas for estimating software size that can either supplement or replace the use of story points on Agile development projects. If you've got Agile estimation techniques in place that work for your team, I would never recommend disrupting that. However, if your team has difficulty applying Agile estimation consistently or is frequently subjected to some of the other pitfalls, I would recommend an alternative approach to sizing.

One idea that is frequently discussed is function point sizing. It's an ISO-certified (20926:2009) industry standard software sizing measure based on functionality described from the users' perspective. Since you're reading IFPUG's *MetricViews*, I am going to assume you are familiar with function point concepts. If you are not, please check out my complete blog article mentioned below or visit www.ifpug.org.

Customer-centric sizing, standardized and ready to go... sounds great, right? Unfortunately, function points have a widespread problem in the Agile world: perception. Many Agile enthusiasts don't believe that function points can work in an Agile environment, even if they have never actually tried it. So how do we deal with this bias against function points and still address the challenges of Agile estimation? This is something a group of estimation experts thought long and hard about, and they came up with a concept called Agilons.

Agilons

The Agilon sizing method is similar to function points but applied specifically to Agile software development projects. There are five types of Agilons.

1. Internal data – managed by the application
2. External data – referenced by the application but managed by another application
3. Inputs – add, change, delete internal data
4. Outputs – reports, calculations based on internal or external data
5. Inquiries – search and retrieval of internal or external data

Agilon complexity generally can be determined by the number of data elements involved. However, this detailed information is not always available when an estimate needs to be completed. In this situation, we should simply make an assumption about complexity and document it for future review and discussion. One common technique is to assume that all functions are average complexity.

Here is the standard Agilon weighting matrix:

This might look familiar to you. It's not quite a Fibonacci sequence, but it's pretty close. Let's take a look at a real user story and apply the Agilon framework.

As a customer I would like to have the ability to search for and reserve a hotel room in order to spend the night somewhere.

Data element details are missing, so we'll just assume "average" complexity. Analyzing this user story reveals multiple

	Low	Average	High
Internal Data	7	10	15
External Data	5	7	10
Inputs	3	4	6
Outputs	4	5	7
Inquiries	3	4	6

Agilon types that need to be decomposed.

Description	Agilon Type	Agilon Size
Hotel data	Internal data	10
Search for hotel room	Inquiry	4
Reserve hotel room	Input	4
	Total	18



In this scenario, if my team's velocity is around 18 to 20 Agilons per sprint, we're good to go! If not, we should break the user story up into smaller pieces to make sure we can complete those pieces in a single sprint.

Coming Full Circle

So how does this approach really address the challenges of story point estimation? Let's revisit some of the most significant pitfalls of estimating with story points.

- Generation of estimates to establish initial project budgets. With Agilons, estimates can be fully documented and explained, even in the absence of requirements, and then can be used to facilitate communication. You can establish a project baseline, but when conditions turn out differently than anticipated, the estimation methodology becomes a mechanism for communicating what has changed and why, as well as what can be accomplished.
- Formation of a new development team with no history

together. Applying Agilons as a standardized sizing metric, combined with good historical data or a parametric model, you can provide estimates that stakeholders can understand. You can tailor the estimate to the combined experience of the development team.

- Establishment of organizational portfolio management with consistent metrics across projects. Leveraging Agilons as a standardized size measure across an IT portfolio empowers consistent productivity and quality metrics across an organization, offering real possibilities for improvement.

This article is an edited version of a more thorough blog article, which can be found in its entirety at <http://galorath.com/agile-estimation-whats-point> ■

About the author:

Ian Brown, Director of Operations and Systems Analysis, Galorath Inc., has over 20 years of professional experience in the areas of management consulting, IT systems analysis, IT performance measurement, metrics program implementation, software process improvement, and cost estimating and modeling. Mr. Brown has been a frequent speaker at national software industry conferences and his "Controlling Software Acquisition Costs With Function Points and Estimation Tools" has been published in *Crosstalk: The Journal of Defense Software Engineering*. He also received the DCG Innovation Award at the 2009 International Software Measurement and Analysis Conference for his presentation entitled "The Zero Function Point Problem."



IFPUG Functional Models Provide Exceptional Value for New Technologies

by Steven Woodward

I attended my first IFPUG conference back in 1992, when new technologies were Graphical User Interfaces (GUI), relational databases, output channels that included micro-fiche, and my new \$10,000 laptop with 250 megabytes of storage on its hard drive!

Fast forward to today, and the systems rarely resemble those of the past.

The culture has also changed, in many cases for the better, but in other cases for the worse.

Consumer expectations of easy-to-use, intuitive, right now from anywhere, have transformed IT to better focus on customer experiences. Organizations that have not embraced customer-centric, value-focused approaches, have found “shadow IT” led by the business quickly becoming a viable alternative.

The new “app” culture has spawned many start-ups and application developers, where the mindset is “let’s see what sticks.” Quality, privacy and security are “bolted on” after they have consumers “stuck”, even locked, into their solutions.

So where does function point analysis fit into this new world of agile, micro-services, open data, open source, blockchain, cloud, IoT and AI?

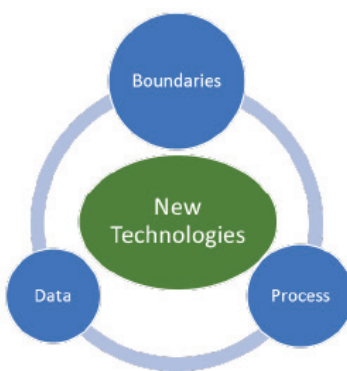
On the methodology front, agile has been moving forward for a decade, with many common-sense approaches that include value-focus, minimal viable product, with multi-disciplinary teams. Today, due to the complexities, more

hybrid agile approaches are used to better assure solutions meet requirements and components can be integrated, managed and governed appropriately.

Function point analysis provides insights so that teams can discuss and solve the complex challenges to assure solutions are secure, meet user/consumer objectives, are cost effective and at the right level of quality.

Sprint planning using function point analysis information helps assure plans (that will change/ evolve) are realistic and executable.

In general terms, the IFPUG method contains three major sets of information that provide valuable perspectives for the new IT eco-system of 2018.



1) Boundaries of Accountability

The advancing technologies include key elements of coordination, collaboration and integration to develop, deploy and support complex IT solutions.

Solutions are seldom developed, deployed and supported by a single organization. IT now needs to be integrators and “brokers” of solutions. Organizations and governments are looking further into “federated” solutions, where sharing of data, functions and processes can provide tremendous value to business stakeholders, while lowering IT costs.

Function point analysis has always helped clarify boundaries of responsibility/ accountability to ensure all key elements have been considered.

2) Data

Storing, moving and transforming data is really what IT provides. Data classifications are key to enable informed decision-making, such that data is secured, protected and is resilient to satisfy the needs of the business.

Data is now usually more valuable than the applications and surrounding functions. The data categorizations impact: compliance with privacy legislation such as GDPR (General Data Protection Regulation), security architectures, performance, costs, quality, schedules and consumer experiences.

Function point analysis has always recognized the criticality of data. The IFPUG method is easily extended, incorporating data classifications and attributes that will provide maximum value back to the team members.



3) Process Flows and Functionality

The complexity of process flows and functions through the solution is more complex today. It is therefore more critical to understand and express these complexities, to assure the end-to-end flow has no surprises or omissions.

Portability, interoperability, and automation are now characteristics of many solutions, providing flexibility, while reducing costs, improving quality and reducing time-to-market.

Function point analysis is largely the same as enterprise architecture models that clarify the flows and interactions. The IFPUG method again can be easily extended to incorporate new technologies such as “blockchain” and artificial intelligence (AI) so that information can be consistently collected, modelled and quantified.

Conclusion

The IFPUG method continues to provide tremendous value in context with the newer technologies. The reality is that solutions of today need clarified trust boundaries, perspectives on data and processes/functions that are integrated and used.

This information leads to better-informed decisions that reflect the challenges of dealing with the various complex options that exist today.

The functional size and applicable other measures and attributes provide the required information to establish, monitor and manage commitments with a focus on customer value and risk management, for efficient use of resources and people. ■

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Reflecting on Measurements in an Agile World

by Joe Schofield

Measurements have been a part of software development and application delivery for decades. Software providers—often project managers—are eager to predict how soon they can deliver, at what cost, and how richly featured the product will be. Different providers are quick to “outbid” each other on schedule, value, and of course, cost. Estimators are pressured to trim their numbers to make them more attractive. Ultimately, teams are given a “frozen” deadline and budget, and a constantly changing, often expanding, scope of work. This pattern has persisted as long as IT itself, and often continues unabated in our agile world. Here are the primary reasons why estimation and measurements continue to haunt estimators, developers, and IT consumers.

In general, most of us just don’t like to be measured and compared to others. *Measurements pervasively surround us:* unrelenting statistics in sports, vehicle mileage, total cost of ownership, steps on your wearable device, interest rates, tax rates, and queue lengths. *Measurements provide opportunity to invasively offend us:* calories burned, weight, scores in school, and rankings in the work place. Competition often suggests that one of us wins, while the rest of us lose (finish a close second?). Many of us are suspect of measurement motives, accuracy, analysis, confidentiality, and consequences.

Measurement wariness translates to our teams and organizations.

Organizations, teams, and individuals often unknowingly measure the wrong behaviors hoping for favorable outcomes. A small set of examples include:

Measuring individual productivity can reveal some startling and

unexpected results. **Individuals are notoriously optimistic when estimating.**³ Under pressure to perform or compete, estimates have been demonstrated to get worse.^{4,5} Biases and over-confidence cast further doubts on estimating skills in general.⁶

Individual performance measures are not well understood but that doesn’t discourage experts from predicting outcomes with some certainty. In one study, no single developer outperformed his/her peers on each of nine assigned programs written in C. Of the eight programmers, five had both a longest and shortest program across the nine programs in a relatively controlled environment.⁷ The data for this study was originally peer reviewed and published in 2005 and it is still cited today by the National Institute on Standards and Technology (NIST)⁸ as a reference to coding variation. Often selected team members are treated with a halo effect when it comes to meeting an urgent time-critical need. Data suggests that those considered experts for a given task may not be. Individual performance measures are based on individuals that may exhibit a wide variation in performance—even for apparently similar tasks.

Another factor that impacts individual performance is the number of projects to which a team is “committed” concurrently—the fragmented time challenge that eludes few organizations. Organizations often remain stuck in specialist and silo roles with little bench strength. Ongoing frequent

crises trigger—what I typically describe as the “911 methodology”—and much like a black hole, key resources just can’t escape the distractions. The gravitational pull of these black holes skew measurement and, likely, benchmark data.

Intent / Measure	Unintended Compromises
Increasing value delivery	Inflating the value of stories; increase in defects
Increasing velocity	Exaggerating the number of story points for stories ⁹ ; unexpected team burnout and churn over
Reducing the accumulation of technical debt	Increasing refactoring (lean disciples recognize refactoring as waste) thereby shrinking value delivery; as an alternative CAST suggests starting architecture early ¹
Reducing the time between releases	Releasing product increments with known but less significant defects
Improving quality by increasing defect removal efficiency (DRE)	Remediating defects that are easily found (while leaving the difficult defects latent); keep in mind that developing products with fewer defects may drive DRE in the wrong direction but improve the product’s reliability. A preferred objective is to prevent defects, not get better at finding them!
Lowering (or meeting) cost by minimizing labor	Neglecting to record time and overtime ²

Most benchmark data employed for estimating is irrelevant to current development practices, outdated for current platform development, and unrelated to team development practices. Parametric models often rely on similar data that doesn't closely match the features or context of the work being estimated. Organizations that measure are likely to discover that the best data (I'm not suggesting it's good, it may be as horrendous as the data you buy) is your own recent data because it reflects your development environment, team capability, and culture. As such, your own data, afforded integrity in the collection and measurement process, may provide the most realistic data for both traditional and agile-based development.

(if you measure) the best data is often your own recent data

Notable variation in agile practices makes agile measurement that much more challenging. *"Please don't tell me you're doing 'agile'"* starts [Keep the Baby](#).⁹ Available today are at least twelve so-deemed agile approaches. Limited conformance to even core scrum practices elicit the use of unproven and unmeasured hybrids, and scrumfall and water-gile-based projects. Being agile might very well encourage this behavior; however, 85 percent of surveyed organizations admitted to some failures with agile.¹⁰ The old quality saying, "You can't manage what you can't measure" might be revised to include "and you can't measure what you can't define!"

Widespread reports of teams "doing agile" without a culture of "being agile" predominate. Culture is often the most cited impediment to agile success. Agile team measures are likely not reflected in classic quarterly and annual reports using ROI, KPIs, and PMO performance. The interests of top IT leadership are more likely directed at preventing data breaches, scaling in the cloud, aging infrastructure, and responding to the Board. Such worthy initiatives leave few cycles for ongoing involvement in the enterprise's transition to an agile mindset, or beyond with DevOps and Product Model initiatives. Velocity and burndown charts get filtered and recast into more traditional representations. The successes attributable to agile are lost in the translations as history, culture, and conformity in reporting to financial committees supplant the transparency and simplicity of agile measures. Agile successes can be measured; 23 such characteristics are reported in one survey alone.¹¹

Project Management Offices (PMOs) often prevail with a steadfast control in traditional organizations; but they can provoke conflict with many agile teams. PMOs often influence estimates (when the least is known about the work), budgeting (and then financial management), resourcing (long before teams are assembled), scheduling, milestones, and development approaches. Almost every one of the twelve agile principles are violated with this front-end loaded approach—usually

because organizations don't know how else to manage. PMOs may also feel at risk when the organization promotes entrusting self-organizing teams to work in collaboration with a product owner. As examples:

- "working software as the primary measure of progress" isn't the same as meeting phased milestones,
- "sustainable development" interferes with imposed overtime and the heroics often needed to meet inherited deadlines, and
- "accepting changes to requirements, even late in the development," may introduce difficult-to-manage volatility with traditional requirements management practices.

While many organizations tout the PMP certification, they remain less committed to the Agile Certified Practitioner also sponsored by the Project Management Institute (PMI-ACP®).

With a variation in team sizes, practices, product owners, and backlog volatility, **teams are justifiably concerned with comparisons to other teams for productivity and quality.** Avoid measuring between teams; agile practitioners describe this as *meaningless* due to the unique nature of individuals and the tasks at hand. Avoid extrapolating velocity and quality data across teams. Instead, share proven practices among teams. Encourage ongoing improvements with teams. (Should be natural if teams are using retrospectives as intended.) Lastly, strive for consistency in practice—not always uniformity in performance.

Some useful foundational agile measurements

- Use story points to estimate relative degree of difficulty with stories—the understanding that results from the discussion is at least as valuable the number itself.
- Use time to estimate tasks associated with stories that are being considered in a sprint.
- Use the sum of available (the work "week" does not equate to available time) team time as a threshold for stories committed in a sprint. Velocity, as derived from story points completed, can be used as an orthogonal approach and a reasonable alternative to validate the stories committed.
- Use velocity to estimate the lead time of the remaining estimated backlog. (Backlog items that have not been estimated with something like story points, are not well enough understood to be included.) Recall the estimates are valid as long as:

1. the product backlog remains unchanged, but recall also that we are using agile because we welcome changes to the product backlog rendering it to be more dynamic than static, and

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2. as long as the environment and team composition remain stable.

- Advocate agility by measuring value delivered by release, though some might also find this useful at a sprint level.
- Measure team wellness using techniques like niko-niko-like charts when in need.
- Avoid any schedule or budget related measures that can be misconstrued as a commitment. Be certain to include abundant footnotes to indicate the intentionally evolving nature of the backlog, priorities, and deliverables.

Size and function points. A long tradition of valuing software on the capabilities delivered using Function Point Analysis is tilted with agile development. The compelling factor is no longer the most capability for the investment; rather, the driver is the most valued delivery in rapid increments based on constantly changing priorities. “Yes” one can still ascribe function points to stories delivered—accurately and consistently if stories are “decomposed” to the transactional level. And why not decompose capabilities needed by the business in business language, such as:

As a customer, I want to make {Create} a reservation, so that . . .

As a customer, I want to look up {Read} a reservation, so that . . .

As a customer, I want to change {Update} a reservation, so that . . .

As a customer, I want to cancel {Delete} a reservation, so that . . .

CRUD is powerful for initially analyzing the customer needs—in the language of the business, with minimal translation needed. “Logical files,” a variable in Function Point Analysis aren’t changed by value delivery, but they too may be impacted with the ongoing delivery of product increments. Just because counting function points for agile projects can be done, don’t expect agile teams to display exuberance around another measure unless a value can be demonstrated to the agile team. Consider project-level size measurements to be ancillary at best to value delivery and velocity. While it may seem intuitive, even tempting, avoid any comparison of story points to function points.

Very little scrutinized (credible) data exists across the agile community to compare teams and practices. First, because very few organizations use an agile framework like scrum consistently. The ScrumButs far outnumber any *standard* Scrum process or practices, in part, because there is no industry standard.^{12, 13} Aspects of certain agile and scrum practices meet some criteria for elements of various ISO standards such as requirements and project management; nevertheless, a standard for an end-to-end agile process is non-existent, perhaps even intentional.

So, while the **challenges of measuring in the agile world abound, so too do the opportunities.** The intent to deliver value often does not conflict with having meaningful measures

that further help us to understand our capabilities. Empirical process control can be supplemented with data to verify our observations. Opinions matter. Data matters more—if you have it. The goal of both is to improve. Team-inspired improvement seems preferred to imposed improvement or a mandated edict to conform to classic cultural norms. Agile teams are said to thrive on self-organization and accountability for results. Ongoing reflection is the twelfth and last agile principle. Selected measures can bolster improvements and increase team cred. HMMMMMMMMMMMMMMMM? How might we measure that?

Special thanks. *I want to thank the following colleagues, active agile practitioners, for their review and insightful comments that enhanced this article and sharpened my thoughts.*

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- Jennifer Turgeon; *Principal Member of the Technical Staff, Systems Research and Analysis; Sandia National Laboratories*
- Perry Waldner; *Vice President of Software Engineering, Walker Digital Table Systems* ■

References:

- 0 *Inflate Gate: Mastering Overestimation for Agile Software Projects*; Computer Aid's Accelerating IT Success, featured article; 8/3/2015; Schofield
- 1 *The CRASH Report 2014 – 2015; Executive Summary*; CAST
- 2 Actually disclosed during discussion to bring a military contract in “under cost”; Schofield, circa 2004
- 3 ORGANIZATIONAL BEHAVIOR AND HUMAN DECISION PROCESSES 48, 100 -130 (1991); Influences on the Appropriateness of Confidence in Judgment: Practice, Effort, Information, and Decision-Making; PAUL W. PAESE, University of Missouri-St. Louis; JANET A. SNIEZEK
- 4 *Measurements, Biases, Judgments: Understanding Variations for Reliable Estimates*; Keynote Address - Sao Paulo, Brazil; Brazilian Software Measurement & Analysis Conference; November 11, 2011; Joe Schofield
- 5 Underestimation in the “When It Gets Worse Before it Gets Better” Phenomenon in Process Improvement; Advanced Concurrent Engineering, 2011, Part 1, 3-10, DOI: 10.1007/978-0-85729-799-0_1; Ricardo Valerdi and Braulio Fernandes
- 6 The Oz Principle; Connors, Smith, Hickman
- 7 *The Statistical Case Against the Case for using Lines of Code in Software Estimation*; 4th World Congress on Software Quality; Bethesda, MD.; September 17, 2008; slide 13
- 8 NIST citation
- 9 *Keep the Baby*; IFPUG *MetricViews*, January, 2015; Schofield

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

11 VERSIONONE; 11th Annual State of Agile™ Survey; 2017; slide 13 –
How Success is Measured with Agile Projects

12 Standards and Agile Software Development; W.H. MORTEL
THEUNISSEN, DERRICK G. KOURIE AND BRUCE W. WATSON;
ESPRESSO Research Group, Department of Computer Science,
University of Pretoria, 2003; <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.121.5853&rep=rep1&type=pdf>

13 Conference on ENTERprise Information Systems / International
Conference on Project MANagement / Conference on Health and
Social Care Information Systems and Technologies, CENTERIS /
ProjMAN / HCist 2015 October 7-9, 2015; A Compliance Analysis of
Agile Methodologies with the ISO/IEC 29110 Project Management
Process; Sergio Galvana*, Manuel Morab, Rory V. O'Connorc,
Francisco Acostad, Francisco Alvareze

Additional resources:

Wanted: A GPS to Track My Agile Project; ISMA¹¹; Sao Paulo, Brazil;
November 18, 2015

Implications and Opportunities Relevant to “Agile” Measurement; ISMA¹⁰;
Charlotte, N.C., April 30, 2015

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Joe Schofield is a Past President of the International Function Point Users Group. He retired from Sandia National Laboratories as a Distinguished Member of the Technical Staff after 31-years. During twelve of those years he served as the SEPG Chair for an organization of about 400 personnel which was awarded a SW-CMM® Level 3 in 2005. He continued as the migration lead to CMMI® Level 4 until his departure. Life long learning: Joe holds six agile-related certifications: SA, SCT™, SMC™, SDC™, SPOC™, and SAMC™. He is also a Certified Software Quality Analyst and a Certified Software Measurement Specialist. Joe was a CMMI Institute certified Instructor for the Introduction to the CMMI®, a Certified Function Point Counting Specialist, and a Lockheed Martin certified Lean Six Sigma Black Belt. He completed his Master's degree in MIS at the University of Arizona in 1980. Visit <http://joejr.com/bio.htm> for the full bio.



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ARE FUNCTION POINTS STILL RELEVANT?

by David Herron

IT shops currently developing and deploying software are most likely using one of two development methodologies; traditional development lifecycle (waterfall) or an iterative methodology (agile). Certainly, there are many variations of these two approaches but most everyone in IT can identify with one or the other or both. Chances are you are using some techniques from both practices.

If you are using agile methods, there is a good chance that you are using story points as your ‘sizing’ method. If your large-scale development project dictates that you use a more traditional waterfall approach then you may or may not be using function points as your sizing method.

A growing concern in the function point community is whether or not function point analysis is still relevant in today’s development environment. With the increasing popularity of agile (and therefore story points) and the limited use of function points on projects using traditional waterfall methods, it is no wonder that the use of function points is called into question.

In this article, we will take a look at function point sizing in the context of today’s software development methodologies. We will also look at other areas where function points are being used such as outsourcing IT and managing third party providers. Spoiler alert – function points are still very much needed,

and therefore relevant, in today’s development environment.

Why function points

To put the discussion of function points relevancy into some context let’s agree on some typical uses of functional sizing methods. First and foremost, size is used as a key metric in any and all basic estimating models. If you are predicting an outcome without using a sizing metric it isn’t called estimating it is called guessing. Functional sizing is also used as part of a comprehensive measurement program. These programs may serve any number of goals and objectives. They can be used as part of

a process improvement initiative or for advancement of quality practices. The third common use of functional sizing methods, such as function points, is for baselining and benchmarking.

Iterative (agile) development

As mentioned earlier, story points are the sizing method associated with agile development. And, like function points, story points are used to estimate the 'size' of work (sprint backlog) being required by a user (user stories). Since a sprint is a fixed timeframe; e.g. two-week iterations, there is no need to estimate duration. Story points are primarily used to develop a measure of velocity or the number of stories that can be delivered to the user.

Function points are not readily adaptable for use in an agile environment; at least not in the traditional sense. There is no need to estimate the duration of a sprint since it is already fixed. Nor is there much value in trying to estimate overall project duration and effort since a product backlog (requirements) can be ever changing as user stories are developed and deployed.

The use of function points has a mindset that focuses primarily on the completion of a project, whereas agile has more of an approach that focuses on ensuring that the developed product satisfies its end customers and changes itself as the requirements of the customer changes.

Some organizations will use function points to size the final software deliverable. When the agile project is thought to be complete and functionality is in executable form, then a proper sizing can be performed. Having this functional size

available can be helpful in evaluating the quality of the end deliverable by computing such measures as defect density.

Traditional development

Function point analysis was developed at IBM back when software development was predominantly using waterfall methods. In fact, one of the early criticisms of function points was that they did not apply to development initiatives that were outside of the business application, mainframe, waterfall approach arena. Over time we have learned that the use of function points and other functional measures can be applied to many application types on varying platforms using various development methodologies.

One of the main problems with trying to apply function points in a traditional development project scenario is not an issue of the effectiveness of the function point method as much as it is a potential problem with the effective execution of the methodology. For example, assuming you are using function points to estimate the duration and level of effort of a project, that measure is dependent upon a clearly stated set of requirements. Incomplete or changing requirements are going to yield initial sizings and estimates that are less than accurate.

This is not to say that function point sizing should only take place if requirements are thought to be complete and accurate; quite the contrary. In those situations, where requirements are ever changing, sizing the changes in requirements can effectively show issues with the requirements gathering process and pave the way for recommended improvements.

Outsourcing IT

Since the early 1990s, so-called outsourcing megadeals have increasingly become an operational strategy for managing IT development and support costs. These multi-year outsourcing deals, when directed at outsourcing IT shops, are founded on wide ranging objectives including cost management, core competencies and improved delivery. Typically, those contracts stipulate required cost savings year over year over the life of the contract.

The IT customer is looking to manage or reduce IT costs based on the delivery of pre-defined output levels. Ideally, the customer will have established a baseline of performance regarding current costs, quality, speed of delivery, etc. Most appropriately, successful outsourcing contracts have been written to include function point analysis as the sizing metric in establishing a cost per unit of work measure where a unit of work is defined as functional value (function points) provided to the customer.

Unfortunately, a large number of these mega-deals focus primarily on simply reducing cost (labor) over time. That naturally brings into question whether or not you are getting the same amount of functional value at that lower cost. Unless there is some way to measure the functional value being provided, chances are you are getting what you paid for. By establishing a cost per unit of work measure, the customer can then ensure that they are getting the same value at the reduced cost.

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(Are function points still relevant?, continued from page 19)

Vendor performance measurement

On a smaller scale, outsourcing may take the form of contracting with one or more vendors that are hired to service portions of your IT workload. This may include application development or maintaining one or more existing applications. Usually, IT costs associated with developing or supporting existing applications are known and are used to begin negotiating service levels with a third-party provider.

Once again, we see function points playing a crucial role in the success of managing these third-party relationships. When requirements are handed over to the vendor, they can be sized using function points. With that sizing metric in hand, the customer can have a greater awareness as to what the project costs and delivery timeframes are that can be expected. This knowledge can be obtained from internal historical benchmark data or from industry benchmark data that is readily available.

In this article, we learned:

- Function points may not perfectly fit in an agile environment; however, there are forms of iterative development that mix waterfall and agile practices and may provide an opportunity to use function points.
- Traditional development lends itself to effectively applying the function point analysis technique. Issues of incomplete requirements can be best addressed by applying function points to demonstrate the changing nature of poorly stated requirements.
- Large outsourcing deals are well advised to include function points as a cost per unit of work measure. Simply lowering the cost of resources does not adequately track or measure the functional value of the required deliverable.
- Third party contracts are the ideal place for effectively using function points. Negotiations are more favorably managed when the customer has the appropriate information to make a more informed decision.

It may be over-the-top to state that if you are not using function points or some form of functional measurement, then you are not properly managing the development of your software. So, maybe the safer position to take here is to state that, often times, a more informed decision can be made when you know the size of the problem you are dealing with. ■

About the author:

David Herron, David Herron & Associates, is a proven and trusted leader in the industry. He is most noted for his work in the area of *Function Point Analysis (FPA)*. This method of sizing software enables clients to effectively measure the business value contribution of their software deliverable. His books, coauthored with David Garmus, are to this day widely accepted as the noted authority on the topic of FPA and software measurement. Over the course of his professional career Mr. Herron has provided consulting and coaching services for a variety of IT organizations. He is an acknowledged authority in the areas of function point analysis, project estimating, performance measurement, process improvement and organizational change management. Most recently, he has become engaged in the deployment of agile practices and services including agile assessments, scrum and XP. He was a co-founder of David Consulting Group, an IT management consulting firm serving fortune 500 clients worldwide.





If I Was the Queen of the (Measurement) World...

by Carol Dekkers

Did you ever play a game growing up that went “if I was the king/queen of the world, I would...” and you’d fill in the blanks with rules you would change? As a CFPS fellow (20 continuous years of certification as a Certified Function Point Specialist), and a seasoned measurement consultant (and IFPUG past-president), I’m often asked my advice for setting up measurement programs – especially in agile environments. Clients ask, “how should we measure agile?” and “what can measurement do for me/my agile business?” Sometimes I feel like answering “well, if I was the queen of the measurement world...”

Agile development has gone mainstream with benefits ranging from its

effectiveness (delivering the right things for stakeholders), to its flexible adaptability to change, to its efficiency (delivering more on-time and on-budget than waterfall projects). One would think that measurement to compare agile to non-agile projects would be plentiful, yet agile project measurement is often inconsistent with other project measures. Story points, velocity, burn down rates, etc. are unique (and specific) to agile projects.

Sometimes I wish I was the queen of measurement, and if I was, I’d start by changing a few things:

1. IT measurement would no longer be an option;
2. Agile (and non-agile) project measures would be standardized; and
3. IT would focus on measuring things that add value (rather than checking Green Boxes.)

Allow me to explain.

1. IT Measurement would no longer be an option

The fact that IT managers still ask what to measure, how to measure and how to get started illustrates that the software development industry is still emerging as a bonafide profession. Can you imagine mature industries without measurement: construction, accounting/

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(If I Was the Queen, continued from page 21)

finance, logistics, medicine, manufacturing, etc.?

Basic IT measures to answer questions such as how big (software size), how much (cost), when (schedule), and how good (quality) would be routinely and consistently collected. Software size (functional size measurement) would be as common as square feet or distance in construction, and function points would become the common-sense choice for software sizing.

2. All measures would be standardized

Today, story points are used on agile projects to size the product backlog and user stories. Story points are an estimate of the relative work effort (based on a Fibonacci series of values) to develop a user story (requirement). Story points completed per sprint represent the agile velocity (often compared to the delivery rate for non-agile projects).

Today, this presents several issues: a) Story points are non-standard and are specific to a project team; b) Velocity (story points per sprint) introduces the notion of “per sprint” which may be inconsistent and vary in length (typically two to three weeks) and effort (depending on the size of the team working on a sprint).

Minimally, standards would be in place to measure:

- a) Software product size (e.g., functional size in function points, non-functional size in SNAP points)
- b) Effort (person hours) – note that this is an area of gross recording inconsistency across most IT projects. Hours should consistently reflect the effort of the “project

team” doing work on standardized software development tasks and include overtime hours.

- c) Duration (days or standard delivery blocks of time, such as a defined 2-week sprint)
- d) Quality (defects – standard definition and collection)

Measurement should communicate information about how big is the product/delivery (scope), how much did it cost (budget), how long did it take (effort and schedule), how good is the product (quality), and was it worth the effort (value). Some of these measures are combination metrics – but no matter, every measure collected should be defined and standardized.

3. IT would focus on measuring things that add value (rather than checking Green Boxes.)

IT companies collect all sorts of disparate data (run times, mean time to failure, error rates, numbers of requirements/backlog items, help desk logs, even catalogs of function point counts, etc.) – but seldom does the data tell a story about delivered value. Agile principles emphasize working software over documentation, the value of which can be measured in functional size measurement units.

Measuring things that add value (to stakeholders) shifts the development focus from process-centric metrics to outcome or product-centric measures. When process data are collected and reported using a traffic light scheme (measures are color-coded red if their value shows a project is in danger or off-target, green if the project is on track, and yellow if measures show a

project is somewhere in between (cautionary)) – teams end up pursuing “green boxes” instead of delivering software.

To incent project teams to deliver on value, measures would be collected/reported from an outcome or customer focused perspective: customer satisfaction, meeting/exceeding stakeholder expectations, product effectiveness and project efficiency. Function point-based measures would become second nature.

Returning to reality, agile measures remain inconsistent and process-centric; non-standard measures abound (such as effort hours for which there is no standard definition of what to collect), and cross-project comparisons are challenged. Function points, while standardized, remain one of the IT world’s best kept measurement secrets. ■

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Maximizing Function Point Counting Performance in Any Environment!

by Sheila P. Dennis

Many organizations today have adopted or are planning to adopt the use of the International Function Point Users Group (IFPUG) function point methodology. As with any key initiative, the organization has to continually evaluate cost, resource and business decisions to be able to implement an effective and efficient program. This paper will address some of the key measures and considerations for function point activities, what targets can be expected, what factors drive the measures, and how to maximize function point counting processes and resources.

Background

The Function Point (FP) methodology is an industry standard best practice for functionally sizing the software deliverable. Governed by the International Function Point Users Group (IFPUG), it is a rules-based counting method that is meaningful to both the business user and developer and can be used early in the development life cycle – certainly before any code is written. Software sizing using FPs considers the functionality that has been requested by and provided to an end user. The functionality is categorized as pertaining to one of five key components: inputs, outputs, inquiries, interfaces and internally-retained data. Each of the components is evaluated and given a prescribed weighting, resulting in a specific function point value. When complete, all functional values are added together for a total functional size of the software deliverable.

Function points can be applied consistently across any software project and so are useful for normalizing development measurement (e.g. productivity, cost, quality, time-to-market). Two primary uses are to manage outsource vendor delivery of software and for software estimation. Using function points as a basis for software size, an organization can also compare development or support performance within internal teams and benchmark to industry averages. Development sizing involves counting new development or enhancement projects; support sizing involves counting applications (baselines) in a portfolio.

Consistency of FP analysis is critical to produce meaningful results and this can best be achieved by trained, certified FP analysts performing FP analysis regularly and frequently with the support of peers. Through formal testing and levels of experience, individuals can become Certified Function Point Specialists (CFPS). It is widely accepted that counts performed by two CFPS will be within 10% range. Within an organization using a standard process and documentation, the variance can be as low as 2-5%.

When an organization has made a strategic decision to use function points as a basis for measurement, leadership must evaluate multiple implementation strategies to maximize value and minimize costs. Two of the major considerations are:

1. Do we build an internal center of excellence for counting activities, outsource this function to vendors, or have a hybrid of contractors and employees? And,

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2. Do we implement across the organization in phases, with or without a pilot, or implement at the organizational level across multiple lines or teams?

The function point counter performance measures, and the drivers which influence those measures, can assist in the decision-making process.

Why measure function point counting activities?

From a business perspective, there are five (5) core goals for any project or program.

1. Effectively manage workflow
2. Proactively manage end user expectations
3. Accurately plan, budget and forecast deliveries
4. Accurately estimate deliverables
5. Show value to the organization and the client

The goals for function point counting activities are exactly the same. Count delivery, whether internal or from an external source, needs to be managed, tracked and measured as any other process. For vendors/suppliers of function point counts, measuring counting activities is critical for tracking internal costing, pricing contracts, and monitoring throughput capabilities. However, counting activities affect the bottom line of any organization – client or supplier, internal or external. For that reason alone, the counting process needs to be as efficient and cost-effective as possible. Used like any other metric, productivity and throughput measures can be used to validate the process, show improvement or discover areas for improvement.

What are the key performance measures of the counting process?

Productivity rate. Counter productivity is measured as size/effort, e.g. number of fps counted/effort to produce the fps. Usually calculated as a range, the industry average varies from 300-500 fps/day for an IFPUG CFPS, given the same process and documentation artifacts. The factors that influence the counting productivity are in the next section of the paper.

Delivery rate. Counter delivery rate is measured in hours/count and is widely used by measurement vendors. Vendors maintain metrics on delivery rates for various internal and external clients, based upon the counting process and type of count, to determine costs and pricing. Enhancement counts are usually 6-8 hours; application counts average 5-7 days unless unusually large. What is included in the delivery rate is not only the counting, but any review meetings associated with the count. It is important to put these numbers into the context of the time and investment needed for a typical enhancement project or to develop a completely new application. In most cases, these would be measured in person months!

Throughput (Velocity). Velocity is a measure of throughput - a view of productivity within a time box. Counter velocity is gauged by the number of counts that are delivered in a specified

period (day, week, or month). This measure is used to project and plan count workload and to manage volume counting. Note that throughput may take precedence over productivity rate. According to Tom Cagley, Past President of IFPUG, "I would suggest that with or without a time box, throughput is a much more valuable measure of value delivery. The faster and higher number of work items completed the higher the delivered value. For example, if you have a backlog of randomly sized units of work then throughput is more important than productivity."

What are the drivers of performance measurement?



Counter knowledge and experience. Knowledge of the IFPUG rules and the expertise to apply them correctly is essential to obtaining an accurate and defensible count. According to Mike Harris, President and CEO of Premios Group, "Our clients insist on using certified function point specialists because we are often concerned with counting projects that are being delivered to fulfil a contract between our client and a third party. IFPUG certification means that both parties to the contract can be assured of the reliability of the counts. Indeed, IFPUG certification is written into those contracts!" Ian Brown, Director of Operations and Systems Analysis for Galorath, reiterates the importance of certifications. "It gives clients reassurances that you know what you are doing and have the expertise to help them solve their problems. For example, when working on a project that involves function point analysis, one of the first questions a client will ask is, 'Are you certified?' If you can answer, 'Yes, I am a certified function point specialist,' then that's the end of the discussion. If you can't answer that way, then there's always the possibility of nagging doubt in the client's mind. These go a long way in establishing your credibility with clients."

It would clearly be expected that an experienced CFPS would produce significantly greater throughput and productivity than a new CFPS, who may know the rules but is more likely to come across scenarios they have not seen before

– requiring careful consultation of the rules and discussion with mentors.

If an organization decides to have internal counters, then they can develop their own counting facility through a BOT (build – operate – transfer) model. Senior (often external) CFPSs train, review and audit internal counters until knowledge transfer goals and experience levels are appropriate for consistent FP analysis.

Standardized processes. The minimum steps to completing a count are - gather the documentation; analyze and perform a draft count; review the count; finalize the count. Whether counting internally or using a vendor, additional structured meetings may be necessary, depending on organizational process levels or contractual obligations. Application teams (Subject Matter Experts – SMEs) may be expected to participate in a review of the counts. Interaction with other stakeholders may also be a part of the counting process. For quality purposes, quality assurance reviews (internal or external) of the counts may be needed. Each additional step in the process adds to the counter effort when considering productivity for planning, costing and pricing. As with all process endeavors, a standardized process is usually more efficient.

The counting process may be standardized as a standalone process or may become the foundation for larger standardized process, e.g. estimation. Efficiencies and positive results are evident when employing a standard functional measure. “Organizations that leverage estimation tools along with a consistent, industry standard measure for software size (such as function points) are able to more clearly articulate the factors and assumptions that are driving their estimates. They are also able to explain the impact to cost and schedule estimates when requirements or project conditions change. Their estimation method becomes a means of communication as much as a method for project planning and budgeting.”

Project and baseline documentation. There are several artifacts that are needed to be able to count function points. One of the first steps in the counting process is to determine the scope of the project and/or release. Scope refers to the applications which are affected by the project. In order to determine the application boundaries and the extent to which the applications are affected, architecture and interfacing diagrams can be very helpful. Once the application boundaries are established, business (functional) requirements and user stories are primarily the first source for counting. However, logical data models, system/design specifications, data flow diagrams, use cases, and user manuals can be used as well. For optimum counting efficiency, supporting documentation needs to be complete, clear and specific as to the functionality delivered by the application. Lack of sufficient documentation will necessarily require more effort to collect needed information, usually by additional SME interviews. It is interesting to note that organizations that regularly suffer from poorly thought through requirements will often modify their requirements processes in order to count more efficiently, thereby

facilitating counter productivity and improving the quality of requirements.

It is worth noting here that Agile organizations are just as prone to this as traditional waterfall organizations and perhaps more so. The process of writing down requirements in waterfall is not necessarily efficient but it does tend to highlight gaps in the user’s understanding of the problem. In Agile, defining requirements at the high level only is more efficient but can sometimes hide inconsistencies that emerge later – early FP analysis of high-level Agile requirements can help with this problem in addition to providing valuable high-level software size information.

How can we optimize our counting activities?

In the previous section, we addressed using standard processes, having adequate supporting documentation, and the use of CFPS counters. Additional optimization options are as follows.

Counting Artifacts. As part of the standardized processes, efficiencies can be gained by using uniform counting artifacts. This could be accomplished by the use of a standard workbook to record the count, a shared repository for counts, and/or the use of a function point tool (e.g. Charismatek’s Function Point Workbench). Function point tools are used to record the counts, and may have other features, such as counting help, an estimation module, and reporting capabilities.

Counting Methods. The amount of effort to perform a count is dependent on the depth of detail that is required. Generally, a count is performed as a “full” count, with the full application of the counting procedures. This method requires detailed requirements. However, for better productivity and higher throughput, there are two (2) modified methods that can be employed, called FP Lite™ and QEFP (Quick and Early Fps).

FP Lite™ is a statistically acceptable method for counting, especially early life cycle counts, where design specifications are not available. Using the FP Lite approach, all complexities are assumed to be average, bypassing the need for the additional level of detailing that is used in a full count. QEFP applies a similar approach; however, it is quicker and easier to learn and apply since it is based on “turning words into numbers”, i.e. analyzing requirements for nouns and verbs and converting those items into function point entities. Studies by DCG Software Value have shown that 75% of the time the FP Lite™ method resulted in counts that were +/- 20% of the detailed function point count and counts that were 150 fps or more had a smaller variance (-8.9% to 3.65%). In addition, using this method resulted in a productivity increase of 18.6% (50 – 150 fps) to 37.6% (150-300 fps).

Facilitated counting sessions are another method for completing FP counts. These types of sessions require a larger time commitment from the Subject Matter Experts (SMEs); however, often the FP counts are completed in less hours

and definitely provide the completed counts in less calendar time. As stated in The IFPUG Guide to IT and Software Measurement – Chapter 12 Facilitating Function Point Counts by Lori Holmes-Limbacher, “Counting sessions that include both the FP expert and the project/application Subject Matter Expert (SME) are proven to be the best way to achieve both the efficiency and accuracy objectives. This avoids the need for continual follow up and/or assumptions being made due to counting sessions occurring in a vacuum separate from the SMEs. However, facilitated sessions can be difficult and time consuming without the necessary skills or a structured process for preparing and conducting the counting session.

To obtain the most accurate FP count in the most efficient manner, the FP facilitator should:

- Follow a defined process
- Know the International Function Point Users Group (IFPUG) rules
- Be aware of any local counting standards and/or templates
- Know what questions to ask
- Understand the relationship between functions
- Know how to diagram and document the outcome of the session

This use of this technique should be carefully considered as it does require support from project team members in the counting sessions. The sessions will not be successful if the participants are not prepared and cooperative.

Counting Guidelines. In addition to the use of IFPUG rules, there may be local rule interpretations (guidelines) used by your organization to ensure consistency in counting when employing multiple counters. While quality is the primary purpose, the guidelines also facilitate faster counting by detailing counting solutions to specific scenarios, usually complex ones. The counter does not have to “re-analyze” when encountering that scenario. The development and use of the guidelines also promotes strong communication and support in the counting team.

Counting Shortcuts. As part of the guidelines, there can be specific profiles and patterns that may emerge when counting an application. For example, when performing a full count on an application, it may be apparent that all input transactions are of high complexity. Or, when developing an application, hover help (or tool tips) is always incorporated. Recording that information for all counters to use facilitates future counts for applications or projects.

Vendor Considerations. When evaluating vendors as counting consultants, the potential vendor should be able to show evidence of a standardized process, complete with tailor-able artifacts.

Conclusion

Counter activities can be measured and optimized as any other process improvement initiative. Three performance measures to gauge your counting program are productivity rate, delivery rate and velocity. They can be used for process improvement, costing, pricing, and contract negotiations.

Use of standardized sizing processes, guidelines, shortcuts, and the right people are critical. The best FP analysts are certified and experienced with access to support from their peers. ■

Sources

- Function Point Lite™ – Is It a Statistically Valid Method of Counting? Sheila Dennis and David Herron. 2011. https://www.softwarevalue.com/media/1084335/herron_fp-lite-paper-cai.pdf
- DCG Software Value. Webinar: Sizing Your Software Deliverable: A Fast Path Approach, Nov. 2012. <https://www.softwarevalue.com/media/958346/sizing-your-software-a-fast-path-approach.pdf>
- DCG Software Value. Webinar: Turning Perfectly Good Words into Numbers: Quick and Early Function Points And Project Estimation, Tom Cagley. Nov. 2012.
- Brian Glauser and Ian Brown, <http://galorath.com>, Cost Estimation Software for Planning and Tracking, 2018.
- Premios Group. Trusted Advisor and Conference Presentation: Faster, Better, Cheaper. Improving Counting Productivity and Delivery; ISMA 2017.

About the author:

Sheila Dennis, CFPS, CSP, Senior Managing Consultant (Part-time), PREMIOs, holds a degree from Columbia College in General Studies (Mathematics) and a certification in Management Studies from Golden Gate University. She served for over 20 years in the Dept. of Defense in software development, process development, feasibility studies, and measurement. When retiring from DOD in 2004, she was the Director of Process Improvement and Metrics Analysis for the Denver Site. She continued her career working for Gartner Group and Computer Sciences Corporation, and eventually joined DCG Software Value (PREMIOS) as VP and Director of Software Sizing. Her career spans global and domestic clients in both government and private enterprise. She has taught at many IFPUG conferences, authored numerous industry articles, contributed to three IFPUG measurement books; served as President of the Rocky Mountain Function Point Users Group; and is currently Chair of the Certification committee.

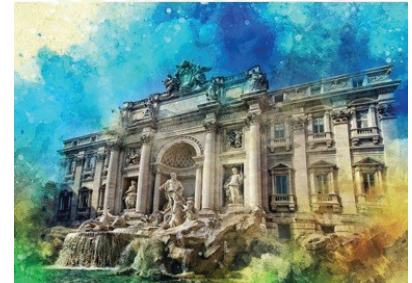


Thanks Cleveland, Ohio, USA (ISMA¹⁴); Welcome Rome, Italy (ISMA¹⁵): from Lake Erie to the Mediterranean Sea

by Antonio Ferre Alberio



ISMA 15



ISMA¹⁴ conference celebrated from September 13-15, 2017 in Cleveland, Ohio, USA was a special event for different reasons. One of them was the high level of the speakers and the topics discussed. The conference day, opened by Capers Jones, gave the opportunity to discuss a set of interesting topics. Function Points and Internet of Things, best practices for counting, the value of a proper cost estimation, the Brazilian experience in counting Non-Functional Requirements, ICEAA and enhancing estimation through Cooperative Collaboration, and the Project Initiation Center of Excellence concept were some of the topics addressed. Presentations are available for IFPUG members in the Knowledge Base private area of ifpug.org.

Additionally, IFPUG celebrated its 30th Anniversary. The International Function Point Users Group was born

30 years ago in the Cleveland, Ohio area. The third reason, making this a special event, was the naming of the first two IFPUG Honorary Fellows, recognizing the years of dedicated service and contribution to IFPUG.

More than 4500 miles separates Cleveland from Rome. ISMA¹⁵, the next GUFPI/IFPUG collaborative International Software Measurement & Analysis Conference, will be held in Rome, the Eternal City (La Città Eterna), on May 9-11, 2018. Save the date because ISMA¹⁵ will be an exciting event. The main conference will be May 11th and will feature 15 presentations from more than 20 speakers representing many different countries. This will be preceded by two days of workshops (May 9-10), and CFPS and CSP onsite exams. Information about ISMA¹⁵ can be found [here](http://ifpug.org).

The previous GUFPI-ISMA conference held in Rome (ISMA¹²) was in May 2016 where more than 320 metrics experts from 16 countries attended; a testament that Italy is a mature and very active country regarding IT metrics and functional size metrics. In addition, GUFPI-ISMA (Gruppo Utenti Function Point Italia Italian Software Metrics Association) members and the setting in Rome, Italy makes the attendees feel at home.

ISMA (International Software Measurement and Analysis) are the Conferences organized or officially supported by IFPUG. Previous ISMA conferences have been hosted in Mumbai, India (ISMA¹³); Rome, Italy (ISMA¹²); Sao Paulo, Brazil (ISMA¹¹); North Carolina, USA (ISMA¹⁰); and Madrid, Spain (ISMA⁹). ■

IFPUG Names First Two Honorary Fellows

Congratulations and thank you to Dr. David Garmus and Mr. Jim McCauley for the time and dedication you have given to IFPUG for many years

IFPUG (International Function Point Users Group) is supported by a wide group of volunteers from different countries and continents that want to contribute in the usage of the sizing metrics and project management metrics. A lot of those volunteers, and obviously IFPUG, are considered worldwide luminaries in those areas. But let us say that one particular thing joins all those people, the passion for the metrics and that the project management world benefits from this. There are volunteers in IFPUG that have donated years and decades for IFPUG, investing time and, for sure, personal hours in benefit of IFPUG.

A few months ago, in September 2017, under the leadership of board member, Pierre Almén, IFPUG launched the “IFPUG Honorary Fellow” concept, and annually will award one or more people who have made a notable contribution or dedication to IFPUG. Tom Cagley, the previous IFPUG President, announced the names of the 2017 inaugural Honorary Fellows on September 15, at the conclusion of the ISMA¹⁴ Conference in Cleveland, Ohio, USA: David Garmus, and Jim McCauley.



Dr. David Garmus is an authority in sizing, measurement, and estimation of software applications development and maintenance, with more than 30 years of experience. David Garmus, along with David Herron, founded the David Consulting Group; they authored different books, and he was also the lead author of Certified Function Point Specialist Examination Guide. David is known in his professional, personal, and spiritual life for

his dedication, integrity, honesty, and faith. In the words of Tom Cagley, past IFPUG President, “David Garmus has served IFPUG in a wide range of roles. David’s larger than life presence motivated members and committees ... he promoted IFPUG and function points in numerous books and articles. An anecdote that I always felt demonstrated David’s belief in IFPUG function points was that he took the CFPS test annually until retirement.” Bonnie Brown, IFPUG Functional Sizing Standards Committee Vice Chair said “David has given years of his time, talents and treasure to benefit IFPUG worldwide. As a long-time IFPUG member and volunteer, David shared his expertise, opinions, patience, and most of all friendship, with those that he served alongside.”



Mr. Jim McCauley is a Senior Software Engineer working at the Y-12 National Security Complex, the United States Department of Energy National Nuclear Security Administration facility. Jim has been a CFPS since 1995. He has served as an active member of the IFPUG Certification Committee for more than 20 years. He was instrumental in the development of the CFPS

Certification Program, as well as the CFPS Fellow Award. He has actively participated in the development and maintenance of the CFPS Exam and the CFPS Certification Extension Program. In words of Kriste Lawrence, IFPUG board member, “Jim has been a relatively un-noticed and active IFPUG volunteer for 20 years (since 1997), led the development of the IFPUG Certification Extension Program (CEP) and managed that program since its inception. Jim’s personal efforts and dedication has been instrumental to more than 95% of all CEP applications that have been submitted since the program’s started.” For Mauricio Aguiar, current IFPUG President, “Jim McCauley has helped Brazilian IFPUG members for years with their CFPS exams and extensions and his nomination is a great choice.”

Congratulations to David Garmus and Jim McCauley for becoming the charter members of IFPUG’s Honorary Fellows program. ■

Function Points in First Person

by Charles Wesolowski

I have applied the IFPUG Functional Sizing Method for over 10 years in my software engineering activities. It is an indispensable tool for any professional who deals with software intensive systems, be they engineer, manager, architect, developer, or tester. Functional Architecture, expressed in the form of Boundaries, Elementary Processes, and Logical Files, is the backbone of quality Software Requirements Specifications, irrespective of scale. Highly embedded

systems, deployed on FPGAs and micro-controllers, can be measured as well as enterprise software systems, deployed on virtual machines and server farms. A software system, measured by its requirements using the IFPUG method is especially useful for SCRUM Masters and Product Owners, as it distinguishes between the size of the software and the size of the Story, providing an internationally recognized standard of measurement. ■

Charles Wesolowski is an IFPUG board member, Senior Principal Software Systems Engineer, SAIC, IFPUG CFPS, and OMG Certified UML Professional, among others.



Benefits of IFPUG Membership

by Saurabh Saxena

IFPUG is a membership governed, non-profitable organization committed to increase the effectiveness of its members' information technology environments through the application of Function Point Analysis (FPA). IFPUG members are part of this association which is dedicated to determine software estimations, quality, risk, compliance, productivity, complexity and value-add to the customer.

Membership in IFPUG provides a number of opportunities and benefits:

- It retains the validity of IFPUG Function Point Certificate (Certified Function Point Specialist), which establishes your credentials as a specialist in the growing field of software metrics.
- Substantial discounts on IFPUG products – Function Point Counting Practices Manual (CPM), case studies, guide to management reporting, white papers and other IFPUG releases that effectively illustrate Function Point counting in newer technologies (client server, web, etc.), applications (e.g., data warehouses) and methodologies

(e.g., agile) at special membership rates.

- Access to education and professional growth through attending the annual IFPUG Workshops and IFPUG Conferences at special membership rates.
- Networking opportunities with Industry Leaders & IFPUG Board Members during the Workshops and Conferences.
- The opportunity to participate in advancing the state-of-the-art in software measurement through working on IFPUG committees.
- Professional publications: *MetricViews* are available as a printed & online journal featuring software measurement articles, IFPUG news, committee updates & information on the latest advancements in the world of software metrics.
- The opportunity through Vendor Showcases to meet with vendors and see the latest products that are available to support your software measurement and improvement efforts.

- Reduced rates to ISBSG Benchmarking data (for Estimations, Comparison with Industry, etc.)

Apart from the above listed benefits, IFPUG's International Membership Committee (IMC), a dedicated group of professionals across the globe, are always ready to respond to your queries/concerns quickly and efficiently. At present, IFPUG serves over 1,200 members in more than 30 countries. The members come from every major industry segment including aerospace, automotive, banking, insurance, manufacturing, retail, and telecommunications.

So, why hesitate? Any individual, corporation, university/college faculty member or student, or appropriate software-metrics-interested organization that is willing to subscribe to the goals and policies of IFPUG are welcome to be part of IFPUG membership. Come and experience the vast opportunities and benefits provided by IFPUG. And if you are already a member, we hope our relations will continue to flourish in the future as well. ■

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Certification Committee

by Sheila Dennis, Committee Chair

January 1, 2018 the Certification Committee restructured with Sheila Dennis, CFPS and CSP, stepping into the role of Committee Chair. Greg Allen, Past Chair, remains on the committee and is working on updating the exams. The Certification Committee also welcomes Don Beckett as our newest member to the committee. He brings a wealth of industry and counting experience to the group, as well as knowledge of several languages. We are all looking forward to working with our new Board liaison, Roopali Thapar.

At present we are all working toward getting ready for the next ISMA Conference in Italy, updating the CSP and CFPS exams, and updating the web site and translations. In the midst of all this activity, we are celebrating yet another milestone.

During the IFPUG 2001 annual conference – the IFPUG Board of Directors approved an alternative option to retain the CFPS designation without taking a subsequent examination. A task force was appointed and one year after that approval, the CFPS Certification

Extension Program (CEP) became effective on September 1, 2002.

Since 2002 when the CEP became a reality, hundreds of individuals from 14 countries have been utilizing the CFPS CEP to extend their certification status. Today, IFPUG, as the leading international certifying body for Functional Size Measurement, takes great pride in announcing the 1000th person to retain the right to hold the CFPS designation by utilizing the CFPS CEP is Douglas Amancio de Godoy of Sao Paulo, Brazil. Congratulations, Douglas!

Individuals like Douglas have helped to make the IFPUG CFPS designation the worldwide “platinum standard” for the recognition of individuals with a specialized level of knowledge and expertise in functional size measurement.

Interested in the CFPS or CFPS CEP? Detailed information may be found on the IFPUG site: <http://www.ifpug.org/certification>. If you have questions you may contact the Chair of the Certification Committee at certification@ifpug.org. ■

Communications and Marketing Committee

by Antonio Ferre Alberio, Committee Chair

The world changes fast but Information Technology changes faster than other industries. IT has transformed commerce, business and even life. IFPUG is not only a user of the new IT techniques, but might be viewed as a leader from the management point of view, because IT is the IFPUG core.

We have adopted the concept that the flow of information to the IFPUG members and users is important. It is essential that a specific IFPUG improvement or information is not only to be announced

on the IFPUG site, but to be communicated as news, to be spread through the different social media channels (LinkedIn company page, LinkedIn IFPUG official group, Facebook page, and Twitter), and sent in a newsletter e-blast. In addition, if you are subscribed to the site news, you will receive an email with weekly updates.

To make getting the information easier, in recent months we have modified the e-blast format, avoiding receiving a lot of emails from IFPUG and concentrating

different news in a summarized monthly newsletter with a new, more visual look and feel.

Also, since ISMA 14 (September 2017), all the information about ISMA events is created and stored on the ifpug.org site. All the info will be historically available in the IFPUG site, avoiding ad-hoc domains or subdomains. We invite you to visit the website for ISMA 15 information (Rome, May 9-11, 2018), that for

sure will be an amazing event: <http://www.ifpug.org/isma15>

To promote and encourage the use of software measurement techniques, especially size, and to cooperate with other organizations with similar interests and purposes are two core objectives of IFPUG. Standard metrics, sizing and benchmarking sometimes are pending issues in the IT industry and IFPUG is a worldwide lighthouse on those points.

Social media is key to connect with new audiences, especially management levels, education and younger people. We are active on social media, but we need to be much more, and we need you to spread and to share IFPUG information and benefits. Do you follow us on social media? Are you actively sharing information? If you detect improvements, comments are welcome! ■

Conference and Education Committee

by Filippo De Carli, Committee Chair

It is almost one year since I accepted to be the chair for CEC, a really challenging opportunity given to me by Tom Cagley.

A good opportunity to share my experiences under a new point of view, going out of my country and learning how to manage what I am familiar with (organizing conferences and workshops) under different perspective.

We (me and my CEC members) started to work actively since the beginning to organize the ISMA¹⁴ in Cleveland. A great training deal where we learned how to manage different cultures and find suitable solutions within the CEC scope. With ISMA, we need to observe that we have two different ways to reach the same goal: following only the IFPUG rules or following IFPUG and

Local Organizer rules. The ISMA¹⁴ was a good conference for the U.S. We had good speakers, but less than I expected attendees. Now, we are running for ISMA¹⁵ in Italy next May 11th, organized in conjunction with the Local Organizer (GUFPI-ISMA). We will see what the result will be as we plan to have 400 attendees! And running for ISMA¹⁶ in Brazil next October. So, stay tuned! ■

Functional Sizing Standards Committee

by Dan French, Committee Chair

2017 saw quite a few changes for the FSSC. Two of our members, Roopali Anand and Chuck Wesolowski, have become Board members. The FSSC is grateful for all their work and expertise during their years of service and wish them great success as they move on to the Board. Chuck will also be the Sizing Practices Committee Director, replacing Dacil Castelo, who is now the International Membership Director. The FSSC would also like to thank her for her years of support and guidance. If you or anyone you know are interested in volunteering for the FSSC, please

submit a volunteer form to IFPUG (ifpug@ifpug.org).

In addition to our monthly committee meetings, the FSSC met for 3 days in September at the ISMA¹⁴ Conference in Cleveland, OH, USA. At the Annual meeting, we worked on white papers, iTips, and planned for the coming year.

The FSSC's major accomplishments this year included publishing an update to iTip 3 Logon, as well as readying for publication of the "Function Point Analysis Applied to BPM-Based System" and "Applying Function Point Analysis to Data Warehouse Analytics Systems."

The FSSC is also working on a new version of IFPUG Case Study 1, which will be released in 2018. We are also working on member recommended updates to iTip5 "Real-time Data Sharing" and iTip6 "Shared Data Real-Time Responses." The committee is always looking for new projects to work on and welcomes suggestions from members on topics of interest. You can submit your suggestions to dfrench@cobec.com.

FSSC is looking forward to a productive 2018 with our new members' contribution to the FSSC and IFPUG's success. ■

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International Membership Committee

by Saurabh Saxena, Committee Chair

The mission of the IFPUG International Membership Committee is to provide help to IFPUG memberships and to resolve any kind of requests, doubts or queries related to anything and everything with IFPUG.

In addition, any member can contact IFPUG directly through the IFPUG office (located in Princeton Junction, New Jersey, USA; Princeton Junction is halfway between New York and Philadelphia), different country representatives exist in different parts of the world close to the members of a given country and speaking the same language. Actually, country representatives exist in Brazil, Italy, India, Spain, China and it is

obvious that all queries can be addressed by the experts who are not only people from those countries but who also speak the same language. The specific emails of the different country representatives can be found on the IFPUG contact page, and who is who can be found here. This group of persons, with a high spirit of service, are the first layer of IFPUG which directly interacts with end users, in addition to the main office.

The objective of this IFPUG group, in addition to this spirit of service, is enhancing the member's experience and value, and interact with them quickly. From Brazil, Italy and India alone (the countries with a higher number

of IFPUG certificates), more than 350 requests were resolved in 2016.

Based on these three countries, in India the number of requests per year increased by 20% in the last two years; in Italy the average resolution time is around 5-10 minutes per request; and in Brazil almost one request was resolved every day in 2016 (the number of requests doubled from 2015).

The top 5 typical requests, doubts and clarifications are focused on Change in CFPS process from Prometric to iSQi, Certification Extension Program, people certification searches, membership renewal process, and certification and Membership Process & Benefits. ■

Industry Standards Committee

by Steven Woodward, Committee Chair

The Industry Standards Committee will continue to transform and expand into 2018. The "ISO Committee" changed its name to the "Industry Standards Committee", to better reflect the IFPUG contributions and influence on multiple standards communities.

Carol Dekkers and Steven Woodward continue to represent the United States and Canada respectively, as part of ISO SC7 (Software and Systems Engineering) activities, keeping IFPUG visible as a

valuable sizing method for the systems of today.

Talmon Ben-Cnaan is chairperson of the IEEE Non-Functional Sizing Standardization activity. This is moving forward, largely using the IFPUG SNAP approaches as a foundation to generate the IEEE standard.

Pierre Almen has joined the Industry Standards Committee as the liaison with International Software Benchmarking Standards Group (ISBSG) community.

For 2018, we look forward to further expansion and participation by our members, impacting multiple systems communities, best practices and standards.

We welcome new participation in the committee as we move forward and expand.

If you have ideas as to where IFPUG should get involved and collaborate with other industry standards, please let us know! ■

Non-functional Sizing Standards Committee

by Talmon Ben-Cnaan, Committee Chair

The Non-Functional Sizing Standards Committee is moving on, to have SNAP and IFPUG FPA as the world leading sizing methods.

Assessment Practices Manual (APM) 2.4 was published and is available

through the IFPUG website. This new APM release includes a major change to subcategory 2.2 Help Methods. The new method of sizing Help Methods was based on a research between the SNAP committee and Marymount University

in the US, which successfully improved the correlation of SNAP with the corresponding work hours.

In addition, the new APM provides an enhanced set of rules and examples for joint functional and non-functional

counting based on the corresponding two white papers published through both the Functional and Non-functional Sizing Standards committees.

Together with the new APM, new versions of the SNAP counting tool and the Quick Reference Guide were released.

IFPUG is working with IEEE's Software and Systems Engineering Standards Committee to generalize SNAP as an IEEE standard. Talmon Ben-Cnaan, IFPUG's Chair of the NFFSC is the working-group chair on behalf of IFPUG; Charley Tichenor, the Vice-Chair of the NFSSC, and Roopali Thapar from

IFPUG Board, are also part of this project.

More SNAP experience is now added to the NFSSC with a new volunteer, Mr. Srinivasa Rao Kanneganti, from Mindtree. Mindtree is using FPA and SNAP, and we hope that all of you will benefit from their experience. ■

Committee Rosters

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- Sheila Dennis, Premios – **Chair**
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