

In-the-SPIN

Newsletter of the **BostonSPIN**

Issue 43 December 2001

Software Process Improvement Network

Editors: Judi Brodman
Sheila Lynch

Editorial

Those of you who missed last month's meeting missed a treasure! Ed Yourdon was at his best – serious and humorous – a mixture that was just right! A summary of Ed's talk can be found below and his slide (he used only one slide) is out on our web site (<http://www.bostonspin.org>).

This month we are welcoming Watts Humphrey as our speaker. Watts has been a giant in the software process improvement area since its inception. He established the Process Program at the Software Engineering Institute (SEI) of Carnegie Mellon University and led the initial development of the Software Capability Maturity Model (SW-CMM). He and I have engaged in many an interesting conversation on the applicability of the SW-CMM to small projects and small organizations. If you refer back to some of the old Dear SPIN Doctor columns, you will find him providing additional information in support of the SPIN Doctor!

This month, Sheila and I are introducing some formatting changes in the Newsletter. We are striving for a simpler look while maintaining the high quality of the information we deliver to you. The Committee Spotlight column, previously the SPIN Perspective, will still feature an article by a SPIN Committee member while the Featured Article will be a contribution by any Boston SPIN member. We have introduced the Speaker Spotlight and are hoping to obtain an article from the Speaker of the Month to spotlight in the Newsletter. Please send us your feedback on the new look!

A few thoughts as we face the holidays and a new year – May the year's end bring a true reflection on what we have faced this year, acceptance of the finality and reality of it, and a hope, as we enter a new year, that we are a stronger and more caring people because of it. May the holidays find you where you want to be... with family and friends.

Happy Holidays to you all and a healthy, happy, prosperous 2002...

Judi Brodman, Co-editor, *In-the-SPIN*, email comments to brodman@logos-intl.com

Letter from the Chair

This month's speaker is Watts Humphrey. He will be speaking on December 18, 2001 at MITRE on What is Excellence? Process Improvement for Individuals, Teams, and Organizations. I'm sure this is going to be a vital talk to any of us interested in improving the state-of-the-art. Looking forward to seeing you there.

We of Boston SPIN are about to begin defining the Excellence criteria for Boston SPIN in the coming years. We're starting to develop a strategic plan for the next year of Boston SPIN. You can be part of that planning process. We want to invite you to participate. We need members with opinions who would like to tell us what you liked this year, what you didn't like, what we need to do better, what we should never do again

The way you can do this is to go to our new (beta-version) web site: www.bostonspin.org and go to the Discussion area and add your comments to the discussion item, BostonSPIN Feedback and Strategic Planning. You're welcome to do this anytime you have something to say and if you feel really strongly but don't like public forums send it directly to me at Boston_SPIN@yahoo.com.

Regards,

Linda McInnis
Chairman, Boston SPIN

BostonSPIN Established January 1993
Software Process Improvement Network

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Committee Spotlight



This issue's article is by our own Vice-Chair, Barbara Purchia, Director of Engineering Operations, Configuration Management Business Unit, Rational Software.

What the Boston SPIN Means to Me

The original title for this article was going to be "I Need Help." It was going to be about how difficult it is to ask for help even if you know you need it or when you're at a loss and don't know what to do or you've tried everything you can think of and nothing has worked so far. People don't ask for help because they feel that they should know the answer or that people will think they are incompetent or even stupid.

However, as I thought about the article, I thought about how much help and support I've received from the Boston SPIN; some I have asked for and some I haven't. I am basically a shy person (yes, I am an introvert) and I have tried hard to overcome that aspect of my nature and be more outgoing. Co-founding the Boston SPIN in 1992 and serving in several Steering Committee capacities has helped me grow both personally and professionally.

What I have valued the most during the past 7 years of my association with the Boston SPIN is the friendship, support, networking and help. Many of us have gone through good and bad times at our jobs. It has been wonderful to talk to people who either are or have been in similar situations. SPIN and SPIN members have helped me with networking and the emotional trauma of some of these situations, offering advice and counsel, contacts, and help with my feelings. The Software Process Improvement profession can sometimes be lonely and peerless within your company. The Boston SPIN has provided me the opportunity to find peers and share experiences (and even whine a bit about them!).

We have many wonderful speakers, some well known in our industry and some not so well known but who have shared their experiences trying to improve the software development experience. These speakers have provided food for thought and the ability to try some of their experiences in my job.

Now that the holiday season is here, I would like to say Thank You to the Boston SPIN members for enriching and improving my life. Whether you attend meetings, roundtables or the book club, read the newsletter, or visit our web site, the Boston SPIN offers lots of opportunities for you to share your experiences, ask for help, and to grow both personally and professionally.

Happy Holidays to all!



Speaker Spotlight

The following article is reprinted, with the author's permission, from SEI Interactive, a quarterly on-line publication, http://interactive.sei.cmu.edu/news@sei/columns/watts_new/2000/summer/watts-sum-00.htm

Moving the Goal Posts

by Watts S. Humphrey



In this column, I talk about the nature of process improvement and why it is such a dynamic and challenging field. The future will be much like the past in many respects, but it will also be very different.

However, as we look ahead, there are some reasonably reliable guides that can help us to address the problems we will face.

Brownian Motion

Just about every time I visit an engineering organization, the people tell me, "We're different." Of course they are. We are all different, but what is surprising is how often truly different organizations behave in the same way. However, it is also surprising how often seemingly similar organizations, when faced with nearly identical conditions, behave quite differently. People are both predictable and unpredictable. Much like Brownian motion in physics, there is no way to precisely predict individual behavior. However, on average, overall behavior is highly predictable. So, what does this mean for process improvement? Essentially, the following:

- First, there is no one best way.
- Second, every situation is different. Each solution must consider the people and their backgrounds, beliefs, and circumstances.
- Third, the lessons of the past are the only practical guides we have for the future. While we cannot predict precisely what will work in any specific case, we can establish highly reliable general guidelines.
- Fourth, the principles behind the quality movement are just as sound today as they were in the past. Those who argue that the new Internet age changes all the old truths will continue reliving the same history that many of us have painfully survived.

What these lessons tell us is that a single-minded approach to solving any human problem will almost certainly be wrong, if not for everybody, at least in many cases. There is no single best answer. People are extraordinarily creative, both in the ways that they solve problems and in how they create problems. Therefore, we must recognize that problems will change, and we must continually seek newer and better ways to address the problems that we face at each point in time.

When the Problems Change, the Solutions Must Also Change

The other day, I read the following newspaper headline: "The quality of U.S. automobiles lags behind Japan and Europe." As Yogi Berra once said, this is "déjà vu all over again." After 20-plus years, can quality still be a problem for Detroit? It almost certainly is, and the best way to tell is that the General Motors board of directors cut executive bonuses. That is a guaranteed way to get management's attention.

GM, Ford, and Chrysler have been working on quality improvement for more than 20 years, but they still have about 150 defects per 100 new cars. However, unlike 20 years ago, these are not primarily manufacturing defects. Most are design problems. Detroit solved the quality problems of 20 years ago, and if the Japanese had not kept moving the goal posts, Detroit would be in fat city. But the world did change, and Detroit is still dead last in the quality sweepstakes.

The world changes, and it does not change all by itself. Everything we do changes it. In another lesson from physics, Heisenberg showed that you can know a particle's location or its velocity but not both. When you measure one, you change the other. People are just like that. As soon as you fix the process, the problem changes. Does that mean that we should give up? Not at all; it just means that we cannot relax. We must keep thinking, and resist the temptation to blindly rely on the solutions and formulas of the past. Continue to follow the same principles, certainly, but don't blindly follow the same path. Sooner or later it will lead to a dead end.

Finding the Goal Posts

While process problems are often unique, they all stem from human failings, and these are common to all of us. Because the same human failings have persisted through the ages, we cannot expect to eliminate them. The process improvement challenge is to devise ways to live with and compensate for normal human behavior. We must recognize, however, that soon after we compensate for a given set of failings, human nature will find creative countermeasures. So, in spite of all our efforts, the battle for improvement will continue indefinitely. Hopefully, however, technology will keep improving and each step will move the goal posts a little further down the field.

Human Failings

While software professionals are marvelously creative and highly energetic, we sometimes feel lazy or want to take a break. We are also a race of procrastinators, and when we can't avoid or put off some difficult or unpleasant task, we try to replace it with an easier task or get someone else to do it. If we find that we still must do the job, we tend to do it as quickly and superficially as we can get away with. This means that for every complex and difficult task, the process improvement challenge is to devise ways to get people to consistently do their work in a highly professional way.

What makes this so challenging is that once we figure out some way to do this, it is only a matter of time before people devise a clever way around our fancy new process. Take estimating, for example. The Capability Maturity Model[®] (CMM) calls for engineers to be involved in and agree with the project estimate. However, soon after an organization puts a new planning procedure in place, some group will almost certainly find an estimating method that uses expert estimators or complex and arcane tools. Experts will then make the estimates and the engineers won't be involved. Even though this destroys the intent of the planning process, unless processes are defined very carefully, people will adopt new practices that conform to the letter of the defined process but not to its intent.

What this Means for Process Improvement

What this means for you and me is that process improvement must not be directed at only the process. The principal objective must be to change human behavior. However, to change human behavior, we must consider and compensate for normal human failings.

For example, we now find that even in CMM Level 5 organizations, people have learned to compensate for their new processes. In some of the Level 5 organizations I have visited, the measurement and process analysis work is handled by the process and quality groups, and the engineers continue to work essentially as they did at Level 1. This totally misses the point of CMM Levels 4 and 5, which is to have engineers *use* data, not just gather and report it. This implies that even the goal posts defined by the CMM levels must be moved to keep pace with our rapidly changing technology.

In the last analysis, to improve engineering performance, organizations must change the behavior of the engineers and their managers. If you find that some change has stopped producing the desired results, find out why and then devise another improvement to solve the new problems.

The Implications for the Future

We have made great strides in the last 10 or more years, and we must continue to build on our successes. However, the goal posts are moving, and the problems we will face in the future will almost certainly be different from those of the past. Think of it this way: You could build a 10-foot boat in your garage, but a 1,000-foot ship would require entirely different tools, technologies, and processes. Similarly, in transportation, going from 3 to 300 miles per hour requires several changes in technology. In the software business, we think nothing of factors of 100. We use the same tools, methods, and processes for a program with 10,000 lines of code (LOC) as we do for a 1,000,000-LOC programming system.

Our ability to master the software-intensive technologies of the future will be largely guided by the ability of engineering teams



to match their behavior to the more demanding tasks they will face. We cannot expect that our current tools, technologies, and processes will be adequate in the future. The challenges will keep increasing, and we must continually evolve our methods to keep pace. We must think of process improvement in multi-dimensional terms and include the educational system, as well as industry. An informed customer community will also be important, and we must consider all levels of the engineering organization: executives, managers, teams, and engineers. Much as in the automobile industry, we must retain the solutions of the past, but we must broaden our perspective to consider all the relevant aspects of the problem.

While it is always risky to predict the future, some trends are now pretty obvious:

- Systems will get larger, more complex, and more integrated.
- Engineering teams must also become more highly integrated.
- Compatibility, reliability, usability, privacy, and security will be increasingly important.
- While schedules must be as short as possible, they must be absolutely reliable.

The quality of every engineer's personal work will be even more important than it has been in the past.

Acknowledgements

In writing papers and columns, I make a practice of asking associates to review early drafts. For this column, I particularly appreciate the helpful comments and suggestions of Noopur Davis, Jim McHale, Don McAndrews, Julia Mullaney, and Marsha Pomeroy-Huff.

Watts has also just completed a new book that will soon be published by Addison Wesley. It is designed for managers and executives and is entitled, "Winning With Software - An Executive Strategy."

Dear SPIN Doctor

by Judi Brodman

No 'words of wisdom' from me this month – I'll be back in January. I'm busy performing a CBA-IPI at a client's and haven't had time to breathe.

This column is for you; let's make a difference! Send your comments and questions to "Dear SPIN Doctor" at brodman@LOGOS-Intl.com. Sign them or use a "pen-name" – I respect your confidentiality.

"The SPIN Doctor"



November Meeting

Synopsis

This following synopsis is contributed by Dolores McCarthy, Boston SPIN Secretary, Quality Manager at Computer Sciences Corporation.

Extreme Project Management

Speaker: Ed Yourdon

It was a capacity audience that came to hear the internationally recognized consultant and lecturer Ed Yourdon's views on the challenges of managing projects under intense risk and pressure.

The presentation opened with sound effects and a dizzying, dazzling overhead of text, arrows, and graphics. Ed stated that his wife had not understood it at first, but assured us we would when he had finished.

Ed began with the observation that the September 11 event had impacted everything and caused a very significant paradigm shift. The dot.com days are permanently gone. We must all reexamine our assumptions, recommit our values to things that really matter, and reevaluate our priorities, especially by asking our children what they think. (A refrain from Crosby, Stills, and Nash, *Teach Your Children*, slid into the presentation to punctuate the theme.) We should look at the consequences of September 11 in our personal, professional, and corporate lives and make adjustments if they are not in harmony.

New communication networks sprang up from person to person after September 11 when the usual ones were down or destroyed. The message is we need to focus on bottom-up, grass roots, emerging networks to manage in crises, because top-down hierarchical mechanisms fail in those circumstances.

September 11 and similar unpredicted events should make corporations realize they need an "early warning system" because change is too fast, chaotic, and disruptive to plan for. Ed quoted Mike Hammer in *The Agenda* as saying that strategic planning is a waste because the future happens chaotically, and we must cope with the world as it is. Often, lower level employees are more aware of hints and clues to critical change. Ed suggested a formal business process for detecting and reporting change, and that corporations should keep their change agents instead of throwing them away.

Ed explained the bursting of the dot.com bubble has replaced the era of "glorious anarchy" with "extreme programming" and "agile methods." To manage extreme projects, it is imperative to use realistic triage on projects at the very beginning, to determine what is critical, important, or just desirable, in order to have project success. Managers must assure they have the right stakeholders and determine what success looks like and who has the right to declare it.

Because of the schedule compression factor in most extreme projects, Ed emphasized the importance of clear requirements specs, watching the rate of requirements creep

or “churn;” getting realistic estimates from previous real project data; negotiating good tradeoffs for schedule, quality, and functionality; using a “lite” process where possible; avoiding Worst Practices; taking the Breathalyzer test (critical questions to ask); careful monitoring of budget and schedule; and using the “daily build” approach (all explained in the link below).

At the conclusion of his presentation, Ed reviewed the initial overhead as one graphic after another filled it in, with accompanying music, and we certainly did understand the whole picture.

To view the complete presentation, which includes references to several books, see the web page, <http://www.cs.uml.edu/Boston-SPIN> (soon to be www.bostonspin.org).

November Roundtables

Xtreme Programming (XP) Experiences

This following synopsis is contributed by Nancy Van Schooenderwoert, Principal Software Engineer at the Commercial Products Group, Textron Systems Corporation, who facilitated the roundtable.

This Roundtable was set up to share my software team's experiences with XP. My team of 4 developers has built a successful embedded software system, and began using XP practices in August 2000.

I began my present project by deciding to use a spiral life-cycle and iterative development. I also felt strongly about shared ownership of the code, from my previous experiences. So when I encountered Extreme Programming ideas in spring of 2000, they weren't a complete change from what my team was doing but more of an enhancement to it.

XP calls for shared ownership of the code; any developer is free to modify any modules necessary for the feature they are working on. One attendee asked if this is really practical because in a large system it can cause problems if someone starts modifying code they don't understand well. It's true that you can't expect everyone to be up-to-speed in all areas of the source code as a system gets large, but you can have one or 2 people look into a potential change - map it out to see what objects & interfaces would need to be changed - and then bring that idea back for discussion to the whole group of developers. You benefit 2 ways: First, the people proposing the solution can get insight from the folks who really know the affected areas of code better; Second, all the developers see the proposed change at a high level so when they encounter its trails in the code they won't be confused by it. Bottom line is that communication among the developers is paramount. Everyone has to understand the overall s/w architecture, and the role of the pieces they are working on.

Another XP practice is the Planning Game. That's how management and the developers negotiate the plan for each release. The key to it all is for each of the 2 players to stick to the rules of the game: namely, that management decides which features are most important and developers decide

how much effort each feature will require. All technical decisions are made by developers and all business decisions by management. If management wants a release in 5 days that has 6 new features in it, we look into the impact of those features prior to the planning game meeting. Then if we say that feature "A" alone will take 5 days, and management says "A" is the most important one, it means they have to choose. They can have the release in 5 days with only feature "A" added, or they can extend the deadline to get more features. But it's their call because the schedule is a management decision. I distributed a list of recent releases that my team produced, and people were surprised to see how short the release cycles were. A typical release might run anywhere from 20 to 3 working days. We find that small, quick releases is a great way to get feedback and demonstrate progress.

Questions were asked about pair programming - was it useful? I said that a couple team members didn't like it and a couple did, so we let people use the method they like but if a feature isn't pair-programmed then we need to hold a code review meeting. We like to discuss the design approach before anyone gets to coding though. This avoids the hassle of having to change a large part of your code after you have it in place just because someone sees a better way to implement the feature. We put a coding standard into place at the beginning of our project (before we were using XP), and this helped immensely to skip useless arguments over style.

There are 12 practices within XP, and we couldn't discuss all of them in the half hour. Interested folks are invited to correspond with me at vanschoo@acm.org. If there is enough interest, I may hold another XP roundtable. Recommended further reading: "Extreme Programming Explained" by Kent Beck.

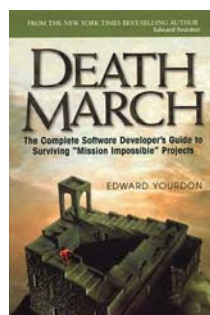
If eXtreme Programming is the Answer, What is the Question?

This following synopsis is contributed by facilitator, Mitchell Model.

Our roundtable participants knew little about Extreme Programming, so instead of the announced topic we spent most of our time discussing what XP is and how it differs from traditional approaches. We paid particular attention to the way XP projects integrate both unit and functional testing into the entire development process. A number of participants described the context of their current software project and wondered whether XP would be appropriate for them. A good time was had by all.

November Book Club Discussion

The following synopsis is contributed by John Britis, SPIN Steering Committee Member at Large, Lead Software Systems Engineer, The MITRE Corporation, who facilitated the discussion.



Death March: The Complete Software Developer's Guide to Surviving 'Mission Impossible' Projects
By Edward Yourdon

December 18 Meeting

Roundtable Programs

6:30* - 7:00 PM

The November Book Club discussed Edward Yourdon's "Death March: The Complete Software Developer's Guide to Surviving 'Mission Impossible' Projects." The Book Club had about seven attendees including the author, Ed Yourdon. This led to a lively discussion including feedback from the author.

The subject of "Death March" is projects that many of us have had to face: projects with outrageous staffing, scheduling, budgeting, or feature constraints that are predestined to fail, and whose failure becomes the responsibility of the team on which the "mission impossible" has been foisted. "Death March" discusses why such projects occur, how to spot them, how to keep them from happening in the first place, and how to survive them.

Here are some of the thoughts that were passed around during the discussion:

- Death March projects can occur when marketing has unrealistic expectations about what it takes to get something done.
- Death March projects can occur when decision makers forget that most software development contains a certain amount of R&D, with associated uncertainties.
- The poor market, which makes some managers and developers "desperate" to keep their jobs, has led to death marches being more common than ever.
- One participant had a success story. They have championed COCOMO as their official estimating engine. Since Sales and Marketing have no alternative, and management considers COCOMO credible, they do their estimating with COCOMO and their estimates are respected, and not second-guessed.
- One participant opined that one major benefit of eXtreme Programming might be its philosophy of never working the team more than 40 hours a week. This might reduce the incidence of Death Marches.
- Another participant suggested that just requiring the payment of straight time pay for overtime might reduce the tendency to turn to extensive overtime to correct for poor scoping or estimating.
- It was noted that some people have seen Death Marches in other industries, usually in "startup" situations, e.g., the startup of a power plant or a manufacturing facility. It is worth considering that these situations -- like most software projects -- represent a project effort that is not well understood by the organization sponsoring it; organizations whose core competency is in operations, not "new construction." This disconnect between the decision makers and the activity being planned may explain the wishful thinking that results in the creation of a Death March.



Roundtables are focused group or "birds-of-a-feather" discussions, with a facilitator to stimulate and moderate discussion. Please join us for a lively series of discussions during the networking portion of the SPIN meeting, before the speaker. Select the topic of your choice, but come early. The facilitators will determine the number of participants, and "first come, first served."

This month's Roundtable Program has been designed to provide discussion topics aligned with our speaker's topic. Watts Humphrey's presentation is "What Is Excellence? Process Improvement for Individuals, Teams, and Organizations." Come share your experience and concerns with other software professionals from New England. We look forward to your participation.

Roundtable # 1. Striking the Balance between Scope, Schedule, Staffing and Quality

Facilitators: Johanna Rothman and Michael Mah

How do you really make tradeoffs between cost, duration, resources and quality? Many of us learned project management as the techniques of balancing a three-legged stool: cost, schedule, and quality. However, as software people, we're quite aware that the people we staff on the project have as much to do with the project's quality and success as cost and schedule. Not only is the staff part of the project success equation, but also the working environment and the feature set you choose also have effects on the project's chance of success. In this roundtable, we'll discuss what project managers really trade off, to make their projects successful.

Roundtable # 2. Boston SPIN Special Interest Group: Test SIG

Leaders/Hosts: Paul Piper and Michelle Gross

*** Please Note: This SIG roundtable only will BEGIN PROMPTLY at 6:00 PM.**

Rational will provide a technical talk on its tool suites and how they support the Software Lifecycle, emphasizing quality assurance and test tools. Alternative tools will be covered with plus/minus analysis, including RequisitePro vs. DOORS and DDTs vs. ClearQuest. At the end we'll collect what information or demos are desired by participants and when/where/how these could be made available.

Roundtable # 3. Process Definition

Facilitator: David Heimann

What "could" you have in one? What "should" you have in one? Why? What are the ways of representing processes?

Roundtable # 4. The Personal Software Process - A Few Unexpected Lessons

Facilitator: J. Erik Hemdal

Have you tried applying PSP? What were your overall results? What do you see as roadblocks to instituting PSP? How can the PSP fit into other, larger-scale process efforts (CMM, ISO9001, etc.)?

December Main Program

What Is Excellence?

Process Improvement for Individuals,
Teams, and Organizations

Speaker: Watts S. Humphrey

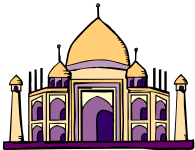
Excellence is generally agreed to be desirable, but it is rarely defined in enough detail to make its pursuit meaningful or practical. In this talk, Watts Humphrey reviews what excellence means for organizations, teams, and professionals. He then describes his personal search for excellence in software organizations and how that quest led him to understand what excellence means for engineers, managers, and executives. His examples are from his work with the CMM®, Team Software Process (TSPSM), and Personal Software Process (PSPSM). In this talk, Mr. Humphrey describes his personal definition of excellence and suggests how others can define and pursue excellence for themselves.

Upcoming Meetings

12/18/01 **Watts Humphrey**

1/15/02 **James Bach**

New Meeting Location



Boston SPIN meetings for the 2001-02 year will be held at The MITRE Corporation in Bedford.

Please be aware that MITRE has advised us that, due to increased security concerns, you will need a Picture ID for admission to the SPIN meetings. We encourage you to leave all carrying bags, backpacks, and briefcases behind (i.e., in your car). Otherwise, you should be prepared to have these opened and inspected upon arrival.

MITRE's campus is located at 202 Burlington Road (Route 62), Bedford. SPIN meetings are held in the 'S' building. Directions can be found on our Web site:

<http://www.bostonspin.org>

Announcements

Cancellations (including weather):

Starting at 3pm, we'll notify you via email to the SPIN distribution list, we'll post the notice on the SPIN web page,

and we'll send the cancellation announcement to Channel 7 TV and WRKO AM 680.

We welcome your suggestions for future Boston SPIN programs. Program suggestion forms can be found on our website <http://www.bostonspin.org>.

We are always looking for interesting speakers. If you'd like to speak at Boston SPIN, please review the criteria specified on the Boston SPIN web site before sending an abstract to Program Chair Barry Mirrer, barry.mirrer@verizon.net or to Linda McInnis, Boston_SPIN@yahoo.com.

Happy Holidays



BostonSPIN Established January 1993
Software Process Improvement Network

Sponsors:

The MITRE Corporation
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Quality Search
UMASS – Lowell (provides support)

The Boston SPIN is a forum for the free and open exchange of software process improvement experiences and ideas. Meetings are usually held on third Tuesdays, September - June. Boston SPIN welcomes volunteers and sponsors. There is no charge to attend the meetings. For more information about our programs and events contact:

Linda McInnis, Chairperson
Boston_SPIN@yahoo.com

Send letters-to-the-editor, and general correspondence to:
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To receive notification of new *In-the-SPIN* issues and Boston SPIN specific notices, send email to:
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