

On the structure and process of membership information between Chapters and SDS

Draft 2: 5/2/2013

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The intention

We want Chapters and SIGs to *disseminate* and *advance* system dynamics, each in different ways: SIGs for their interface and overlap with application domains and Chapters for their coverage of certain territories, where they interact with other groups across application domains.

At the same time, we acknowledge that “membership” is not very precisely defined except for the SDS itself, where members are those who pay the fee: those who are up to date have the “good standing” flag set to “true”, the others to “false”. But Chapters and SIGs have local members (who are not SDS members), and if a Chapter raises membership fees (some do), then there may be “full” members (who pay) and others (with some kind of restriction, for instance for voting).

We want to get to grips with several problems (non exhaustive list):

- some Chapters and SIGs appear to lose their full SDS members over time;
- others have a loosely defined local membership (they lack an operational definition of the degree of activity that makes a person be a “local” member; also a tool for capturing and storing member data over time);
- as SDS, we do not have a tool for routinely monitoring how “membership” evolves between the SDS and its Chapters and SIGs (over several years).

In this document, a stock-and-flow structure is proposed and then used to assign responsibility to capture, store, process and inform between the SDS and its Chapters and SDS.

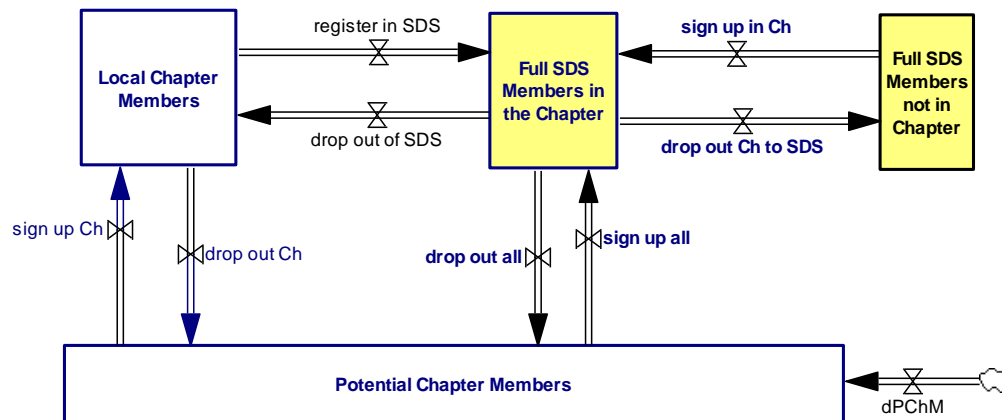
¹ Thanks to Kim Warren, Etienne Rouwette for looking at the previous draft and to the Home Office and Ozge Pala for previous discussions of the subject

The underlying stock and flow structure

Chapters

In this subsection, focus is on Chapters. The following stock-and-flow diagram depicts the core of what is going on with membership between SDS and a Chapter:

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Legend:

- Has to be known and informed by the Chapter to the SDS
- Has to be known and informed to Chapters by the SDS
- Has to be processes conjointly by Chapters and SDS

The SDS seems to have the following objectives which involve Chapters:

1. Disseminate system dynamics; to be implemented as increases in any of the “members” stocks, but also increases of the “potential” stock.
2. Increase the number of paying SDS members, which refers to the “Full SDS Members in the Chapter” (note that this does not imply a net decrease in the “Local Chapter Members”).
3. Advance system dynamics; this would require to further decompose the “membership” states (stocks), which I have not done here. However, the number of years of maintained membership may serve as rough approximation (very rough).

In the following, I describe how this structure and the corresponding database organization can be used to achieve a monitoring function based on collaboration between the Chapters and the SDS.

The *Chapters* have to capture, store, process and inform the SDS concerning the number of Local Chapter Members (LCM) and estimated Potential Chapter Members (PCM) in their territory or subject area (yearly); same for the yearly number of PCM signing up in the Chapter and becoming LCM, as well as the number of LCM dropping out to the PCM. (It is proposed to adapt the Yearly

Chapter Report Form and to develop and offer a computer-based information system to facilitate the necessary tasks.)

The *SDS* has to capture, store, and process the number of Full SDS Members not in Chapter (FMnC) and inform the Chapters about those have signed up in the Chapter (sC) by indicating so in their membership registration form. It also has to inform the Chapters about new FMnC who are living in the Chapters' territory (according to the data in the membership registration form, because this is a relevant information for estimating PCM).

The information about the stock "Full SDS Members in the Chapter" (FM) must be elaborated conjointly, since only the *Chapter* knows the LCM and only the *SDS* knows the FMnC. This requires data interchange involving member identification, which must observe legal and ethical limitations. On registering a new Chapter member, the Chapter has to use a "is X a SDS member?" function. On registering a new SDS member who selects a Chapter, the SDS has to use a "is X a Chapter member?" function. The details concerning each event (at the Chapter and the SDS level) and the processes it triggers shall be analyzed and designed in the coming months.

This also means that the flows adding to or draining from "Full SDS Members in the Chapter" must be subject to collaboration.

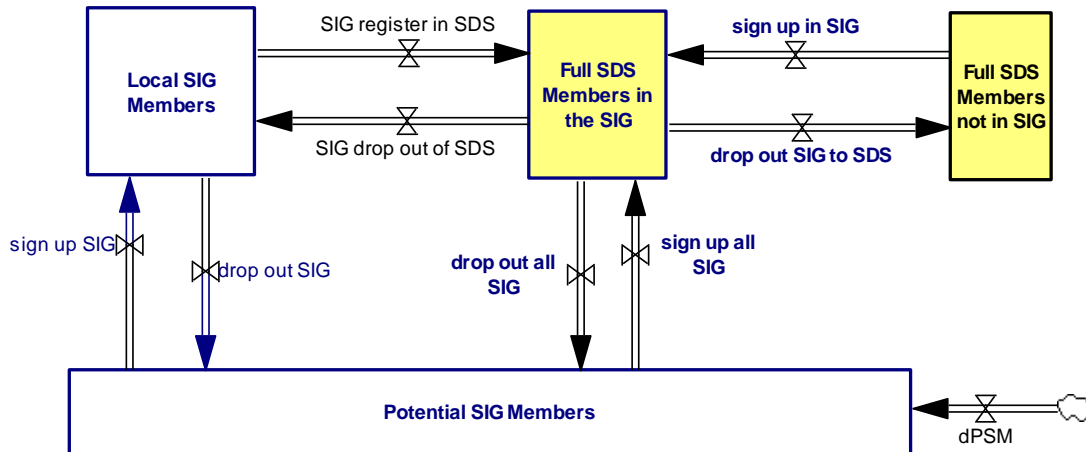
Several simple queries allow to monitor the essential informations:

- The fact of a LCM who "registers in SDS" can be detected by searching for the LCM in the SDS's FM records for the current year and the previous year: if it was not there in the previous year and now it is, this is the trace of the flow.
- The fact of a FM who "drops out of SDS" can be detected by a similar query: if the LCP is not in the FM records this year, but was the year before, this is the trace of the flow.
- The fact of a FM who "signs up in Ch" can be directly registered by the Chapter (if the registration form of the Chapter has a corresponding field or if the Chapter can query the FM database in real time) or indirectly detected by a similar query: if he is in the FM records in both years, but in the Chapter's records only this year, this is the trace of the flow.
- The fact of a "Full SDS Members in the Chapter" (FMC) who "drops out Ch to SDS" can be detected by a similar query: if he is in the FM records in both years, but in the Chapter's records only the past year, this is the trace of the flow.
- The fact of a PCM who "signs up all" seems hard to implement in a direct manner, because it would require both the SDS and the Chapter to have a joint registration process. It can be detected, though, by comparing the Chapters' and the SDS' registers: an individual who was not in either of the registers last year, but now he is, has entered SDS and Chapter at once.
- The fact of a FMC who "drops out all" can be detected by comparing Chapter and SDS membership registers: if he was in the records last year, but not this year, he has dropped out of the SDS and the Chapter at once.

SIGs

SIGs appear to have the same underlying core structure:

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Legend: Has to be known and informed by the SIGs to the SDS

Has to be known and informed to SIGs by the SDS

Has to be processes conjointly by SIGs and SDS

Accordingly, the objectives and other statements made in the section concerning Chapters can be transferred to SIGs by analogy. At the current state of development of this proposal, VP Member Services has signalled his agreement; therefore we will develop this conjointly.

Chapters and SIGs

We know that SIGs' and Chapters' memberships overlap: SIG members have to live *somewhere*, and therefore in many cases there is a Chapter where they live. The other way around, Chapter members have to have *some* interest, and therefore it is only logical to assume they are also member in some SIG. At least for 2012, the VP Chapters report proved this to be true.

It follows that the two stock-and-flow diagrams only represent only one partial perspective each, but as SDS we should also look at the membership from a more global perspective:

- Which percentage of each Chapter's membership is not in any SIG?
- Which percentage of each SIG is not in any Chapter?
- For each SIG: which percentage of Chapters has members in the SIG?
- For each Chapter: which percentage of SIGs has members in the Chapter?

If we knew the answers to these questions for several consecutive years, we'd be able to formulate objectives and manage the development of these percentages.

Information system design

As soon as we have chosen amongst the abovementioned options, it is easy to design a relational database model and a model for the procedures and queries. A membership management information system can then be developed such as to stay compatible with the current software used in the Home Office and to be operational at the local home office of each Chapter and SIG.

We can achieve this during 2013, and would be probably able to retro-insert much data from the past years into the database. The necessary work would be carried out by students under my supervision, so without additional workload for the Home Office.

We would then be able to not only press the Chapters and SIGs to manage the necessary information, we would also give them the tool for doing so and gaining opportunities to manage themselves with minimal workload.

I propose the following tentative plan:

- March – July: collaborative prototype development (the Home Office, VP Member Services, Chapter and SIG representatives, over the Internet).
- International Conference: presentation of the prototype and validation meetings with the interested and affected parties.
- August – October: development and testing.
- November – December: implementation, training and test use.
- Winter Meeting 2014: decision to move to the new information system or otherwise.

This is a risk-free and low-cost plan, which gives us a concrete theme to talk about with our Chapters and SIGs.