QUANTIFIED SELF: A CRAZE FOR MEASUREMENT

With the latest generation of connected objects, the collection of data related to our bodies and our everyday business has taken a new dimension. It now covers surprisingly varied objectives, from wellbeing to productivity and health. Disruptive technologies allow us to monitor, analyze and share these data. But quantified self is not only about devices and gadgets. It is linked to the emerging practices that shape modern life: cooperation, gamification, self assessment. It feeds new information loops, with great economic potential and some privacy issues.

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ParisTech Review – We all have experienced the temptation to "take measures" only to later realize we made a lousy job at sizing them up: on New Year's Day, we promise ourselves to go swimming once a week, or to walk 30 minutes a day… and we also perfectly well know what happens to such good resolutions. With the quantified self, it seems that a radical innovation has occurred: it works! How do you explain that?

Emmanuel Gadenne – Up until now, discouragement was swift to put an end to these good resolutions. Only very special

motivation (such as monitoring one's diabetes), or very special character (with a taste for Excel tables), allowed them to hold over time. There are chiefly two things that are changing with the tools and techniques of the quantified self.

The first change comes with the measuring instruments, which through a series of technical innovations do part of the work for you. The bracelet that I wear, for example, measures the number of steps I take every day. The World Health Organization recommends that we take 10,000 steps a day, and the WHO is always right. But can you imagine having to count 10 000 steps, and then note it down in your spreadsheet? No, and neither do I. The new generation of instruments, embedded with sensors and MEMS (Microelectromechanical systems), at once provides ease of use and radically new possibilities.

Fitbit bracelet

The second element of change, which to a certain extent is also linked with the tech, is the ability to share the data, that is to say, to transmit it to tools or to people that will make something out of the measurements it captures, giving it meaning and scope. It may

be technical meaningfulness, in which case the tools are what is being mobilized: for instance you walked an extra 500 steps today, or you have reached your week's quota. Alternatively, it may be social meaningfulness that is being conveyed: I walked 2000 more steps than my friend did, I have reached the average of people allowing themselves to be measured, or our team has achieved its goal. This dimension of sharing, whatever the meaning and form it takes, is to me the core of the quantified self. It allows you, even regarding activities that are nobody else's business than yours and that you want to remain discreet about, to have feedback, to measure yourself against someone, and not only to measure your progress on your own. It is in this feedback and in the sharing that someone's commitment plays out, and it is the key to success in this type of business.

The socialization of data actually seems a qualitative leap forward. But it also opens up a question: sometimes, quantified self is presented as a simple fad, and sometimes, as an organized movement. What is it exactly?

Both dimensions are true. If we reason strictly, by counting only those persons who actually participate in quantified self groups, we currently have 19,000 people worldwide. But this "activist community," and we'll get back to it later, is spearheading a much larger movement: if we observe practices, for example via the units sold to date, millions of people are concerned. With vastly varying degrees of commitment, of course.

Some of these practices are absolutely nothing new: counting the calories in your plate, for example, is something Weight Watchers have been doing for decades. What is actually changing, undoubtedly, is the part played by technology – devices, on one side, software on the other – that facilitate these practices and are giving them enormous potential.

Can we pinpoint where this all started?

Yes, and very precisely at that. The term itself first appeared in 2007. Coined by Gary Wolf and Kevin Kelly, two *Wired* journalists who started a blog on this subject, it was quickly met with great success. In particular, it was very fast to make it outside of the screen, spurring real life meetings. The participants to these meetings were people who loved to compete and wanted to share the tools to do so. This double dimension, as a matter of fact, is also one of the characteristics of these "activists" of the quantified self: they see themselves both as objects of measurement, and as project leaders.

Currently, there are groups gathering in 92 cities – half of them in the United States, the rest in Europe and Asia chiefly. In France, there is currently but one group, in Paris. These meetings are places for exchange, which can bring together a hundred people. A testimony of ten minutes is followed by a round of questions – people come to discuss and debate. In the Paris group, for example, points of view are exchanged between users, as well as proposed solutions, and there are even researchers that retrieve users lists to conduct qualitative research. Events are filmed, livetweeted, etc. Anything said in there is public.

Let us talk about the tools. Who develops them, and for what purpose?

It is very varied. Within groups, there are a lot of people that come to share and test their tools, which range from simple Excel tables to much more elaborate programs. They come, they listen, and a few weeks later they come up with solutions. In which case what you have is a sense of sharing and free collaboration. But entrepreneurial vocations can arise, and some startups have stemmed out of this associative base.

Meanwhile, a few giants like Nike and Nintendo were quickly interested in the market for connected objects associated with quantified self practices. The goal for them is not only to surf a fad, but also to take position early on in new markets. The case of Nintendo is quite interesting because it started out as player in the entertainment industry. However Nintendo game consoles were the first to be equipped with sensors – a revolution at the time – and the 20 million users of the Wii Balance Board are somehow precursors: they measure themselves, share their scores, compete, challenge one another. Quantified self, in a sense, reprises the spirit of videogame practices to apply it to other areas such as health and wellbeing.

The world of videogames, and more particularly that of serious games, happens to also be closely related to that of quantified self. Firstly because some games are now based on pure physical performance – for example, your character goes through a series of events and it is your breathing rate, measured by sensors, which allows him to make it or not. Secondly, because the gaming medium is one of the forms that make it possible to commit yourself and to share – and these are two essential dimensions of quantified self practices.

Let us take a minute to reflect on this idea of sharing data, which may seem disturbing. Quantified self notably covers very intimate data regarding personal health and fitness: are we really sharing that, and under what conditions?

There are several answers to this question, which define different worlds. Before going over them, I would like to briefly remind that the gamut of fields consisting of measurement is a vast one: take nutrition and weight loss, cardiovascular health, sleep, monitoring and treatment of chronic diseases, physical preparation and sports training, behavior management, self-

evaluation, self-diagnosis, time management, etc. Roughly speaking, four main areas can be identified: sports, health, entertainment, and personal & professional organization. Sharing mainly has to do with the first three, and within this scope, health, which in a broad sense also encompasses wellbeing, is certainly the most important. Yet it is precisely on this point that the issue of data is the most sensitive.

If we take a close look at practices, we realize that people who use quantified self tools primarily seek two purposes: to establish routines, and to engage a performance-based approach. Routines are especially important for people who lack time, e.g. professionals with young children, and more generally people who are wary of their own laziness. As for the pursuit of maximum performance, it has more to do with motivation, and in this case competing with others can prove especially stimulating, as well as functioning on the basis of challenging one another.

In these different scenarios, social space can play a central role: for example it can be a means of control and discipline (I announced that I would run 2 km every day, I therefore publish every day that I have run, others encourage me or simply, I do not want to lose face with them). It can also be used for competition, in circles that we choose: we measure ourselves against others, we seek to shine, to win. It can also be used to build teams, and in this case peer pressure is doubly mobilized: we don't want to make them lose! Or, very simply, the stake is to share experiences, not to be alone in the course of a given effort but instead to create a community around it.

In all these cases, sharing or publishing the data is essential, and sharing features are an integral part of most tools. But we should pay heed to the fact that a certain form of aloofness remains, concerning one's actual motivation for example: officially, I have resumed jogging for the sake and pleasure of a sporty lifestyle, in

reality my doctor urged me to do it... The social space not only serves to provide constraints or to set goals, it also serves to be seen, to take the stage. And the data is part of the show. Produced by high tech, supposedly safe devices, it even guarantees the veracity of the show.

In such circumstances it is understandable that data sharing is often the center of the game. But aren't third parties also getting hold of the data?

Yes they are, and obviously this further complicates the issue. Let us try to see more clearly, because there are several questions in one here.

The first is technical. How exactly is the data collected? The clearest trend here is the introduction of sensors and features into existing objects – your watch, your smartphone, your ipod, your weighing scale, and why not, your shoes or Google Glass, tomorrow... they will be simple options available in the standard issue, that you will choose to activate or not. For now, quantified self is associated with specific objects, gadgets like my step-counting wristwatch, but it's probably a phase that is already passing. Limiting friction is a major stake for the development of these practices. And friction in this case ranges from the purchase in a store to the moment you recharge, or the setting up of new tools. These frictions cause no problems to the so-called marketing early adopters, but the solutions that prevail over time are usually the ones that manage to eliminate such frictions. Consider the fate of organizers or PDAs, which have been cannibalized by smartphones – having become mere features of the latter.

Second question, with whom and how are you to share your data? One can imagine for example that some data sets are relevant to your cardiologist, others for your loved ones, and others yet to a

specialized community, for example, people who play the same sport as you. The selection of these different circles and how the flow is channeled are then crucial issues that you have control over.

But these data sets are going to be transmitted by your device through platforms and mechanisms which will doubtlessly analyze them. This raises issues of confidentiality and mastery over data that have already been examined by experts at the CNIL, the French Commission on Information Technology, Data Files and Civil Liberty. They issued recommendations concerning the technical possibilities to access and control data (such as the ability to delete it) as well as concerning uses, suggesting awareness building and the education of end users (e.g. learning to anonymize some data).

Does this mean that the data of quantified self will become a market?

Yes, and this is already the case. Actually the market is not about the data per se: it is about the knowledge that can be derived from it. I'll give you a very complete example. The RunKeeper application is widely used by joggers, who use it to measure their runs. There are about 20 million users. Well, the publisher of the application is now being approached – against compensation – by large franchises wondering where to implant sporting goods stores, or sports coaches who are wondering where to locate their consultancy. So these tools, to put it very precisely, make it possible to intercept customers on effort trajectories they have themselves defined. And the data collected by RunKeeper is much more accurate and useful, and is therefore much more expensive than that which could be collected by Google or the heavyweight social networks. For RunKeeper can detect real objectives: Mr. so-and-so wants to lose weight, the next person is trying to run faster, etc.

There is a considerable market, because what RunKeeper is doing with running, a scales manufacturer (or the publisher of an application that captures data sent by these scales) can do it with other data, for other clients: the food industry, dieticians... Not to mention the market of targeted advertising, that is to say, the way things are heading, vanilla advertising. Nowadays, Google and its peers are siphoning the advertising budgets that used to feed television, however the data collectors we are talking about are themselves capable of siphoning Google!

So this gives us a glimpse of the economic potential and, incidentally, of potential risks: wouldn't it be a pity if, for example, the data from your blood pressure cuffs were to be reported to your insurer? Hence the importance of personal control and of public oversight of such data. An exemplary approach in this regard is that of the French FING – New Generation Internet Foundation, which has embedded a quantified self component into its smartphone application MesInfos (MyInfo): while it invites you to fill certain fields, it also alerts you about the need to manage your data. Proper use and best practices remain to be devised and implemented. And institutions as well: for example, let us imagine that your data is collected as part of a serious game set up by your company. This can be useful for all, for example by producing better information to provide occupational medicine with. But there are very real risks for your privacy in such a bundle ; and this means that supervision by a civil rights body such as the CHSCT in France – Commission for Hygiene, Security and Working Conditions – is nothing short of essential. Clearly, the scaling up of that logic could and should be promoted.

Quantified self is by no means immune to the Big Brother facet of Big Data... yet, to conclude, I shall emphasize an often neglected dimension in this debat: you too will help, by joining this party of data collection, in advancing the greater good. Certainly, part of

the value produced is privatized, and captured by players who seek only their profit. On the other hand an adequately located store is also a public good. Streams of data on the weight variations of people who are dieting, or on the correlations between the number of steps walked and the decrease in blood pressure, are a common good. For all in all, knowledge is produced: we are getting empirical knowledge that we did not previously have access to, and this will allow for better decisions on our part. Indeed with great benefit for those economic players that happen to be on the right spot in this new value chain, no point in denying that. But it will also entail benefits for all. Quantified self cuts both ways. A manufacturer of connected scales will quickly be able to quantify, for example, the average weight gain that follows the holiday season. This data is going to be mobile: you will gain knowledge of it, which might lead you to be careful about it, or to do what you do with the guidance provided by benchmarks. Industry players will be in the know, too, and will probably come up with a means to benefit from it one way or another. Both aspects are intertwined. But overall we shall end up, and that is true both for you and them, making better decisions. Such is the way of the quantified self. The data generated will be captured, but not captive: it will, in turn, inform and shape the world. Everyone will be affected, and it will be everyone's concern.