The Four Dimensions of Organization Architecture.

The Social Systems Approach to the Organizational Space (aka the Informational Space).

Since 1964, when IBM applied the term 'architecture' to the digital realm[1] for the first time, the scope of what architecture could, or rather should, encompass in the organizational space has narrowed to the extent that the term has meanwhile lost almost all distinguishing meaning. One might say that the ICT-industry has successfully hi-jacked (the term) architecture for their own, limited use.

And yet the complex and ever faster changing world of modern-day human endeavour has an increasing need for the wide approach once captured in the term 'architecture'.

This article seeks to recapture the lost essence of what *must* be expected from architecture in relation to organizations[2], or better: to all *organized human endeavour*. It tries to describe it in one-dimensional terms and provides an overview that hints at how 'four-dimensional' it *must* be in order to deliver solutions to the *true needs* of organized endeavours/enterprises in this age.

First however an explanation of how the assumed deflation in meaning of architecture has come about. For that, one needs to understand, and accept, that any strength is as much a weakness, and that this goes for ICT, too. The tremendous value of ICT is its capacity to develop and deliver all sorts of 'ware' (as in hard- and soft-ware) that *in unison* may enable complicated tasks, but are yet fundamentally based on strict 'binary' components. There is no emergent factor in ICT, which is part of the beauty of it. At the core of all 'ware' is the solid fact that something either is, or is not: 1 or 0. ICT therefore is best performed by left-brained people, with an innate objectivistic paradigm: "*the whole is the sum of all its parts*". ICT has, as it should have, a *justified* blindness for everything else.

The Blind Men and the Elephant

It was six men of Indostan
To learning much inclined,
Who went to see the Elephant
(Though all of them were blind),
That each by observation
Might satisfy his mind.

The First approached the Elephant,
And happening to fall
Against his broad and sturdy side,
At once began to bawl:
"God bless me! but the Elephant
Is very like a wall!"

The Second, feeling of the tusk
Cried, "Ho! what have we here,
So very round and smooth and sharp?
To me `tis mighty clear
This wonder of an Elephant
Is very like a spear!"

The Third approached the animal,
And happening to take
The squirming trunk within his hands,
Thus boldly up he spake:
"I see," quoth he, "the Elephant
Is very like a snake!"

The Fourth reached out an eager hand,
And felt about the knee:
"What most this wondrous beast is like
Is mighty plain," quoth he;
"'Tis clear enough the Elephant
Is very like a tree!"

The Fifth, who chanced to touch the ear,
Said: "E'en the blindest man
Can tell what this resembles most;
Deny the fact who can,
This marvel of an Elephant
Is very like a fan!"

The Sixth no sooner had begun
About the beast to grope,
Than, seizing on the swinging tail
That fell within his scope.
"I see," quoth he, "the Elephant
Is very like a rope!"

And so these men of Indostan
Disputed loud and long,
Each in his own opinion
Exceeding stiff and strong,
Though each was partly in the right,
And all were in the wrong!

A musician must make music, an artist must paint, a poet must write if he is to be ultimately at peace with himself. What a man can be, he must be. This need we call selfactualisation.

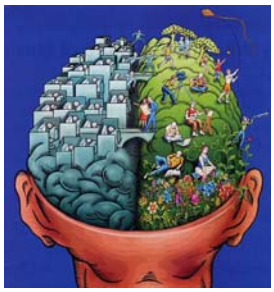
Abraham Maslow

But in all intent and purposes, *all organized human endeavour is always more then the sum of its components*, and to ask ICT professionals to deal with this is in truth unfair to them and *un*justifiable. Also, customer organizations have left equally constructionist disciplines within their own ranks, often engineers, to deal with their need for architecture. It is then logical as it is predictable that all efforts are limited to a strict constructional approach. Further to this simple logic, the collaboration between the *internal constructionists* and the *external ICT suppliers* (1+1=2) can, by definition, never result in complete solutions for organizational complexity (1+1=3)…

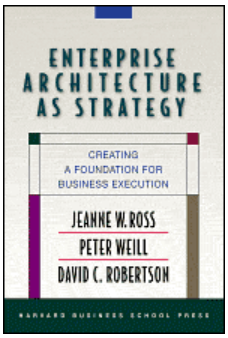
[1] The article "The Architecture of the IBM System/360" by Amdahl, Blaauw and Brooks.

[2] 'Organization' in the broadest possible meaning, including the total context of an organizational unit (including all in-/direct stakeholders).

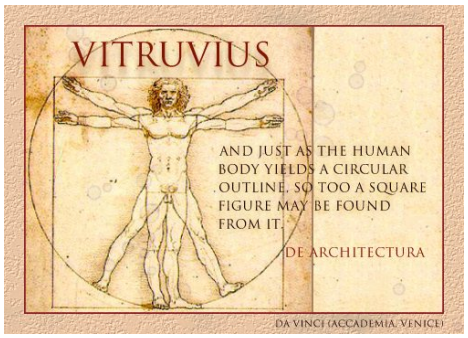
And simply stamping 'architect' on the foreheads of very skilled software engineers and functional designers changes nothing to the fact that one, in doing so, unjustly leaves professional 'technicians' to come up with solutions for the deeper needs of *human endeavour*… (poems…, paintings…). One needs *ICT professionals* for *ICT* indeed. One needs *architects* for *architecture*.
Then the next question should be: *what distinguishing properties does architecture*[3] *have then*? The answer will unavoidably also shed some light on the paradigm and competencies of an (organization) architect. To get there let us start with the following definition of



architecture: *The fundamental organization of a strong, useful and beautiful system, embodied in its components, their relationships to each other and to the environment and the principles guiding its design, evolution and durable adaptability*[4]. Experience shows that predominantly left-brained people, especially ICT professionals, take offence against the use of *subjective* words in this definition (useful, beautiful), and more often then not also against the *relative* words in it (strong, durable). This of course is completely in line with the discourse of this article so far: one can indeed never *build* anything that is *objectively* 'beautiful' or even 'strong'. These words assume subject/object relations as well as context driven emerging factors as an intrinsic part of 'architecture'. Architecture covers all these relations and factors indeed. ICT definitely does *not*, and rightfully so!



And yet, somewhere during the evolution of ICT's value-produce from *singular automating* through *multiple facilitating* into present-day *complexity enabling*, the leadership within most organizations have left a gap that ICT is now frantically seeking to fill… But the gap is *not* an ICT-gap! We see great initiatives coming from 'the world of ICT': the book *Enterprise Architecture as Strategy* truly is a good example of such an effort. But… in spite of all good intentions, the book is embraced mainly by people within that very same (ICT) world. Not too surprising however when one considers the fact that this initiative is based on (enterprise) architecture as '*the organizing logic for your IT systems and business processes*'. Definitely not for the whole board: the CTO will handle it. Or, in other words: *give ICT the chance to fill the gap of architecture and they will see ICT everywhere…* Meanwhile awareness of a strong need for collaboration between ICT and completely different professions, outside of ICT, increases but fail to materialize. Mostly because ICT is not ready to accept the fundamentally different paradigms that come along with those other disciplines, and those other disciplines simply refuse to *see ICT everywhere…*



This article proposes a answer to the architecture challenge that is, in fact, as old as architecture itself: organization architecture as *a different field of expertise on its own*. "In terms of specialization one might say that the hallmark of the organization architect is, that he is specialized as a generalist.[5]" A generalist in social systems and the organizational space (and *not* 'just'

[3] Vitruvius (25 BC) described it as "a structure exhibiting the three qualities of *firmitas, utilitas, and venustas.*", that is, it must be strong or durable, useful, and beautiful. See also http://www.pauljansen.eu/definingarchitect.htm
[4] ©2006 Paul L. Jansen, based on IEEE's definition of architecture. See also the article 'On Architecture'
[5] See within the Vitruvius Interview 'On the Architect' for elaboration.

ICT!). Such an architect is the simple ánd complete match to the *general* challenge that organized human endeavour, and all of its aspects, puts on architecture: *back to basics*!

"The organization architect shapes the informational space. And yes: ICT professionals provide objects of structure and functionality that bind digital information flow within that space. *And then there is a lot more that ultimately makes up the enterprise.*"
- Paul Jansen.

For the sake of all, but especially for those readers that are blessed with predominantly logical, left-brained minds, the 'break-down' that follows is provided as an overview of the components of '*human endeavour with intent*' (organization; enterprise). Components that all will find their place in architecture. Bear in mind however that the total of these components still falls short of what constitutes the sum of endeavour itself: the *organization is always more then the total of its parts*. What follows is certainly not an extensive elaboration or even 'how to' on the four dimensional approach but aims to shed some light on the attributes of, and needed competencies for, organization architects as… *the architects of organizing*.

The First Dimension: *Structure*.
In Vitruvius' words: the *strength* and *durability*. This truly is the dimension of ICT, and then some. It includes everything that can be built or constructed. No matter how ingenious it may be, it can always be brought back to its components and their interrelationships. It is applicable to buildings, organizational diagrams or any arrangement of parts or elements. And it can always be repeated, with exactly the same result.

The second Dimension: *Business*.
This is what Vitruvius refers to as *usefulness*. First understand that 'business' is not (just) about money but stands for the objectives of any human endeavour, and the (organized) way these objectives are achieved. Another way of looking at business is: *relevant, calculable (core) processes*. It is less solid and more conceptual then the first dimension, but has the very same hallmarks: the arrangement (organization) of parts or elements that lead to a certain, solid, predictable and measurable result. This second dimension is handled as an objective area and is in this respect a logical 'partner' to the first dimension, and syncing these first two dimensions is called *business alignment*.

Most, if not all, efforts by ICT to provide solutions for the need of organization architecture are applications of a mix between first and second dimensions. Of these two-dimensional solutions 'business alignment' and the SOA-approach are the most popular. This implies however, that none yet take the remaining third and fourth dimensions into (equal) account. This is true as it is logical (pun intended) since the third and fourth dimensions are typical right-brain aspects:

The Third Dimension: *People*.
With this dimension *sub*jectivity enters the architectural equation. The first two dimensions are in all intent and purpose subordinate to this third (right-brain) dimension that Vitruvius calls *beauty*. In all honesty *any* human endeavour (enterprise; organization) always intents to *serve people*: those that engage in it as well as those that benefit from it (clients, customers). Here the *not inferred* mission, vision and goals are relevant, as too are values and, yes, even dreams. Beyond the first two dimensions,

"All organizations are merely conceptual embodiments of a very old, very basic idea - the idea of community. They can be no more or less than the sum of the beliefs of the people drawn to them; of their character, judgements, acts and efforts."
Dee Hock, Founder of VISA.

here the 'social system' that an organization truly is will have to be addressed. But it is not 'the third phase'! The third dimension is where the energy and motivation rests and this has; *must* have, implications for the organization as a whole, including the elements within the 1st and 2nd dimension.

The Fourth Dimension: *Behavior*.

As said: any organization is always much more then the result of just adding up the parts (from the first three dimensions). This is demonstrated by the icon to the right that clearly shows emergent factors, *not* shown in any of each previous icon and, as such, unpredictable.
In observing how an organization behaves, one will always see unpredictable behaviors of which some are positive and some negative. They are very seldom a 'logical' result of the combination of elements from either dimension, but rather *emergent behavior from the combination of, and interaction between, the elements within the first three dimensions*. This is the truly distinguishing dimension of organization architecture, since both the behavior itself, and the capacity to increase desired behavior and decrease undesired behavior, are the (only) key factors in steering towards optimal success.

Organization Architecture: a deliberate learning process!

If this article does but one thing for you, I hope it conveys the fact that architecture is *an ongoing, deliberate process*. And the four dimensional approach is the only truly complete way of 'doing it'. Solidification (hallmark of present-day approaches) is *deadly by nature*.

The laws of nature apply to any organization simply for the fact that these are, indeed, social systems of natural beings. As Darwin said, long ago: "*It's not the strongest of the species, nor the fittest, that survive, but the ones most adaptable to change.*" This goes as much for humans as for any other 'species'. And since intelligent change is, indeed, the only true enduring hallmark of any human undertaking (e.g. organization), architecture is at its core a *change approach*. And by that, as captured in the four dimensional approach, it is *a constant learning process* and as such part of its subject...

Organizations: *Complex Social Systems*

Bottom-line is, that architecture deals with complexity; organizations are all about social interactions and (thus) about systems approach. The four dimensional approach is as holistic as it is closest to the very nature of organizations as a 'species of social systems'. Here it 'all comes together' and insights from various and previously unrelated disciplines *must* meet and *will* make even more sense within this holistic view. The 'laws of the fifth discipline'[6] gain in meaning and value when applied to architecture they. And so do many other wisdoms and insights from all different disciplines. Together they form the arsenal of the architect in dealing with… 'the whole elephant'[7]…

The Laws of the Fifth Discipline

1) Today's problems come from yesterday's "solutions."
2) The harder you push, the harder the system pushes back.
3) Behavior will grow worse before it grows better.
4) The easy way out usually leads back in.
5) The cure can be worse than the disease.
6) Faster is slower.
7) Cause and effect are not closely related in time and space.
8) Small changes can produce big results...
   but the areas of highest leverage are often the least obvious.
9) You can have your cake and eat it too ---but not all at once.
10) Dividing an elephant in half does not produce two small elephants.
11) There is no blame.

[6] ***The Fifth Discipline: The Art and Practice of the Learning Organization*** (1990) is a book by Peter Senge (a senior lecturer at MIT) focusing on group problem solving using the systems thinking method in order to convert companies into learning organizations. It was first published by Currency in 1990. ISBN 0-385-26095-4

[7] See page 1