the Tetradian weblogs

On economics and Enterprise Architecture

How economics and architectures interact

Tom Graves

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ECONOMICS AND ARCHITECTURE: SAMPLE

This is a sample of the content from the Tetradian ***Economics and Architecture*** anthology.

This anthology from the Tetradian weblog explores how economics and enterprise architectures interrelate with each other, in business, in society, and with the wider world.

This sample contains around one-tenth of the content from the full anthology. The complete book includes about 40 posts and 40 images from the weblog. Those posts are split into six groups:

- *Economics and Architecture: On Architectures* - shows how architecture outlines key flaws in economics, and what it can do to help address them.
- *Economics and Architecture: Business* - illustrates how economics-level issues can impact everyday business.
- *Economics and Architecture: Money* - assesses how perspectives on money, price and value can both introduce useful ideas or constrain new possibilities.
- *Economics and Architecture: Society* - uses architectural methods to explore effects of current economics at whole-of-society levels.
- *Economics and Architecture: Futures* - reviews economics implications highlighted by futures-analysis.
- *Economics and Architecture: Beyond Money* - presents an architecture-based thought-experiment on a form of economics that does not need money to function.

For further information on enterprise-architectures and more, visit the **Tetradian weblog** at weblog.tetradian.com[1]. The weblog currently includes some 1400 posts and more than a thousand images, and is at present the world's primary source on *whole-enterprise architecture* - methods, principles and practices for architectures that extend beyond IT to the whole enterprise.

For more ebooks and anthologies on enterprise-architecture and more, visit the **Tetradian website on Leanpub** at leanpub.com/u/tetradian[2]. (Each anthology contains around 30-40 posts from the weblog.)

Some books are also available in print format, from all regular book-retailers. For more details, see the 'Books' section on the main **Tetradian website** at tetradian.com/books/[3].

[1] http://weblog.tetradian.com
[2] https://leanpub.com/u/tetradian
[3] http://tetradian.com/books/

Why Economics 101 is bad for enterprise-architecture

Been having a fairly intense (but good) discussion on the LinkedIn Enterprise Architecture group, about standard economics and its impact on enterprise architecture. This is one of the many side-threads popping up off Kevin Smith's now long-running discussion on "EA is not the glue between IT and 'The Business', EA is the glue between strategy and execution". I don't know whether this set of posts from various participants will make much sense to anyone else, but it seems worthwhile to post it where others can see it if they wish.

(Note that I've done a small amount of editing of the original posts by trimming and snipping ['…'] and, in one case, concatenating posts from the same person. I believe I've kept the sense intact in each case, but if not, please let me know straight away? Thanks.)

For me, in this case, the start-point was a post by Harold 'Hal' Stull:

> When in doubt I always think Econ 101. An organization manages three resources (capital, labor, and material) to produce a product. If a customer pays more for the product more than the value of the resources consumed, the company shows a profit for its risk and will continue operating. As an architect of any kind, I have to discover the "Who, what, when, how, where, and why" of the client's operation and add something that may possibly increase the perceived value of the

> product to his customer or reduce the resources needed to produce it.
>
> I also try to stay away from absolutes: Truth, Best, Optimum, Consistent, etc. I can do a whole lot with organizational and interface symantics. I would never say "ontology" in front of a client, but being able to work with higher abstractions helps me choose and squeeze value from tool kits. (But I see there is another thread for that topic).

As you'd probably guess, given some of the other posts on this weblog (such as 'Economics: the worst term-hijack ever?'[4]), I kind of jumped at Hal's comment about "When in doubt I always think Econ 101.":

"Hmm. That assumes that 'Econ 101' makes sense and works in the real world, which it doesn't. *That's* the problem.

"You say: "An organization manages three resources (capital, labor, and material) to produce a product."

"The answer would be "Sort-of…". More accurately, Econ 101 treats all of those items (including non-financial capital, such as conceptual and/or social capital) as 'possessable objects' that are the 'property' or 'possession' of an individual or of an organisation-as-corporate-person. Unfortunately this would take a *long* post to explain, but in essence the 'possession'-based concept of economics is a parasitic overlay on the *actual* economy, which operates on mutual-responsibility rather than possession. The quickest summary is that Econ 101 is inherently dysfunctional and inherently unsustainable: so if we're to build an enterprise-architecture that will work for an organisation, we need to focus on the responsibility-based economy behind the possession-based delusions of Econ 101, and not allow ourselves to be distracted by those delusions.

[4] http://weblog.tetradian.com/economics-term-hijack/

"To give one very quick example, most conventional 'business-models' that I've seen assume a very simple Econ 101 market-sequence of:

attention (via advertising) > transaction (via sales) > profit

"For *enterprise*-architecture, we need to deal with a much broader range (e.g. including non-active stakeholders [e.g. government, community, non-clients] and also anti-clients and others who are *active* participants but who are not involved in sales-transactions), and a much more complex market-sequence, such as:

reputation > trust > respect > attention > conversation > relationship > transaction [> profit] > reputation > …

"We also need to understand that 'the enterprise' is *not* the same as 'the organisation': an organisation is bounded by rules, roles and responsibilities (e.g. legal responsibilities), whereas an enterprise is bounded by vision, values and commitments (see my presentation 'What is an enterprise?[5]')

"True, an organisation is a type of enterprise, but for most enterprise-architecture the relevant enterprise is typically at least three steps larger in scope than that of the organisation in scope. (We develop an architecture *about* an enterprise *for* an organisation.)

"Using the assumptions of Econ 101 will *guarantee* that we will deliver an 'enterprise'-architecture that will fail in the longer term. To build an architecture that works, we *must* think wider than that."

Like perhaps most business-oriented architects, Harold was clearly doubtful:

> I'm a practical guy. "Econ 101" is a paradigm I use for analysis. It fits the way businesses operate and helps ground clients in terms they understand. …

[5] http://www.slideshare.net/tetradian/what-is-an-enterprise

> I can use analysis patterns like "Econ 101" and others to check the Business Plan for completeness and consistency. Does that mean that "Econ 101" is true, right or real? No, it's just useful.

JD Beckingham joined in with a similar comment that suggested that, as in another lengthy discussion on values-architecture[6] that I'd had on LinkedIn some months back, he thought I was somehow arguing for what a more equitable economics or suchlike, and wanting to *impose* that view on business-organisations:

> Normative economic philosophy is a fascinating topic for discussion and speculation. (Wikipedia – "Normative economics is that part of economics that expresses value judgments (normative judgments) about economic fairness or what the economy ought to be like")
>
> I have to do the best I can for my employers and clients in an economic milieu which is grounded in free-enterprise economic competition. In order to survive and prosper they need to create sustainable competitive advantage by all the means available to them.
>
> As an EA working within the context of the existing competitive economic milieu, I need to understand how best to advise on effective business strategy; and how to create the business architectures, technology architectures, and enterprise cultures necessary sustainable competitive advantage.
>
> Guess that makes me 'practical guy' and an adherent to Econ 101.

To me, that reference to 'normative economic philosophy' indicated that he'd missed the point completely – after all, I'm an architect,

[6] http://weblog.tetradian.com/values-architecture-101/

not a politician! – and that we need to keep the focus on the *architecture*:

"Why on earth do you think I'm talking about 'normative economic philosophy' when I say that Econ101 doesn't work? (This isn't the first time this has happened – I remember I ran into a similar[7]loop[8] with Cliff Berg and others a while back.)

"I'm not saying Econ101 is 'bad' or 'good' (i.e. value-judgements), I'm saying *it doesn't work*. Yes, it has its own logic: but as with all (or most?) formal theory, its logic is based on a series of assumptions ('premises'), and for the purposes of its reasoning, it *must* assume that those premises are correct. "*Given* those assumptions, *then* this must be true", etc etc. But *it cannot test those assumptions within itself* – that's the nature of logic. (If you do try to use a logical model in bootstrap fashion to test its own assumptions, what you get is the fundamental logic-error of circular-reasoning – which is *very* common in e.g. IT-centric 'enterprise'-architectures.)

"To test Econ101 in the real world, we first have to put aside the assumption that it is 'the truth', and then look very carefully at the context of those assumptions. I'm not going to go into detail ("hooray!", they say? :-)), but in essence it turns out that its assumptions only work – in other words, give meaningful, complete and valid predictions – in a very narrow subset of a possession-based economy, which itself is a subset of the actual economy, which in turn is easiest understood as based on mutual interlocking responsibilities. In other words, Econ101 is a term-hijack[9] – much like IT-centric 'enterprise'-architecture is a term-hijack.

"We here all know the dangers of building an architecture for an entire enterprise that assumes that the IT is the sole reason for that enterprise to exist: well, it's the exact same that happens when you

[7] http://weblog.tetradian.com/values-architecture-101/
[8] http://weblog.tetradian.com/more-on-values-architecture/
[9] http://weblog.tetradian.com/economics-term-hijack/

build an enterprise model on Econ101. It's wrong – very wrong – but only in the sense that *it doesn't work*.

"Econ101 is a subset of a subset pretending that it's the whole: there's no *way* that it can possibly work well. You can only make it *seem* to work by shoving everything not-Econ101 into a 'it doesn't matter therefore it doesn't exist' basket – much like most so-called 'business-architecture' is treated in IT-centric 'enterprise'-architecture. (In economics, the technical term for this is 'externalities'.) Again as with IT-centric architecture, it"s a crude kludge that's sort-of worked up until now, which is why many folks delude themselves into thinking that it works. But the catch, right now, is that there are a whole bunch of reasons why this is starting to fall apart, not just in the wider societal context but within organisations and their business-models as well. (Details available if you want them, but probably best not here? :-)) *Which means that we have to design our enterprise-architectures on the knowledge that Econ101 doesn't work*.

"That's what I'd aimed to explain with the difference between the two views of the 'market sequence', for example. Econ101 shows an oversimplified subset that shows where the *direct* profit-figures come from. But if you design based on that subset (as many people do) you end up with something that doesn't work, but have no means to explain why. To design something that *does* work, you need to understand the *whole* market-sequence – even though the visible parts of your design may in practice act only on the Econ101 subset.

"Yes, I'm 'a practical guy' too: and it's true that most people believe (or *want* to believe?) that Econ101 works, even though we know it doesn't. So we do exactly what we've always done: we lie. :-) Or rather, we give those clients a palatable subset of the truth, something that 'makes sense' etc – just like we've always done with all the other parts of the architecture. (For example, don't show executives a bunch of BPMN diagrams if you don't want to be laughed out of the room…) But we *don't* make the mistake of

believing that that subset is the whole truth of the architecture.

"That's all that I'm saying: nothing more 'normative' than that – okay?"

Whilst I was writing that post, Ron Segal posted another comment, essentially lining up with Hal and JD on the 'practical guy' theme:

> Hal, your description of the use of Econ 101makes sense to me, particularly having been involved in startups, where the initial concern is simply to get the lights switched on. Reminds me of the scenario experiment we ran in another discussion, where we were trying to get a consensus on the 'core' scope of business architecture, which was based around identifying the chapter headings of a startup manual for a car hire business.
>
> And Hal did at least leave us with: 'Does that mean that "Econ 101" is true, right or real? No, it's just useful.' Which might also be interpreted as your 'crude kludge'.

To me, yes, this is all well and good, but it *still* misses the point about the dangers of relying too much on the 'Economics 101' paradigm, and that although on the surface we may have to pretend that we've held to that paradigm, beneath the surface the architecture must be based on something more real:

"This is actually a really good illustration of the difference between business-architecture and (whole-of)-enterprise-architecture, and why it's essential not to treat them as the same.

"In a *business*-architecture we probably do need to assume (or pretend, rather) that Econ101 is correct and complete, because that's the basis on which most of the business operates. Hence, to use Hal's example, we model in terms of capital, material and labour.

"(To go back to another long-running discussion with Cliff Berg and others, here we would probably also have to pretend that the

only reason that that business exists is to provide returns to its stockholders. It's *really* important, even in business-architecture, to recognise that it *is* only a pretence, a delusion, and to remember to build the architecture in accordance with the more nuanced reality that *does* work, e.g. around enterprise-scope vision and values rather than solely on organisation-centric business-imperatives.)

"But at the *enterprise*-architecture level – in other words, the architecture of the entirety of the context in which the business operates – Econ101 *does not work*: its assumptions are based on a subset of a subset of a functioning economy. For example, Econ101 assumes that everything can be described in monetary terms; at the enterprise-level it's *really* obvious that we can't – and if we do attempt to do so, we again create a model that has all sorts of 'inexplicable' problems that seemingly cannot be resolved, because the drivers for those problems are actually outside of the scope of Econ101's assumptions. It's only possible to make Econ101 *seem* to work if we run it as a pyramid-game, a Ponzi-scheme – and the blunt fact is that although that's how it's been run for the past five thousand years or so, we ran out of room at the base of the pyramid somewhen in the mid-20th century, and right now the whole thing is coming apart at the seams. Enterprise-architectures that fail to take these kinds of facts into account *cannot* work, certainly in the longer term: it's as simple as that.

"Okay, we now come back to the architecture of 'the business of the business' – business-models and org-structures and so on. Almost all business-folk believe in Econ101: to be blunt, it's essentially a form of religion, held together by faith rather than fact. (I'm not knocking religion – it has a really important social function – but an insistence on faith over fact is *not* a good basis for a functional economy…) Our *enterprise*-architecture shows us that Econ101 doesn't work in the real world: but business-architectures operate mostly in the imaginary world of business anyway. So, to again put it bluntly, we lie: we provide a bowdlerised, more-palatable version of the facts to keep them happy. We show them

all of the linkages that satisfy all of the Econ101 assumptions – and we make sure that we satisfy all of those assumptions, too. But in the background, we actually build an architecture based on what works – *not* on Econ101.

"Like IT-architecture, or data-architecture, or security-architecture, or process-architecture, business-architecture is just one more subset of enterprise-architecture, one more set of views into the 'holograph' that is the whole-of-enterprise architecture. The business-architecture describes the architecture of the business of the business; yet it only exists in the context of the enterprise-architecture, just as the business itself only exists within the context of a much broader extended-enterprise."

Anyway, that's it for now, though no doubt this particular debate will 'run and run', as they usually do. :-) Hope it's of *some* use to someone – comments/suggestions, perhaps?

Source (Tetradian weblog)

- *Date*: 2010/08/15
- *URL*: economics101-is-bad-ea[10]
- *Comments*: 2
- *Categories*: Business, Enterprise architecture, Futures
- *Tags*: Business, business architecture, economics, enterprise, Enterprise architecture, Futures, paradigm, RBPEA, Society, strategy, values, worldview

[10] http://weblog.tetradian.com/economics101-is-bad-ea

Skills-shortages and 'the market'

What can we do about skills-shortages – the paucity of people with appropriate skills and experience for the needs of our organisation and enterprise? Is the market-mechanism of scarcity-pricing the right way to resolve this?

A quick bit of background: I'm currently retrieving all of my Tetradian blog-posts and reworking them into more structured form so that selected subsets can be republished as more-focused ebooks. It's a long, tedious process that'll probably take me at least a month, but it's also helping me a lot in terms of reviewing where I've been, and re-exploring the, uh, rather large scope that I cover here.

Somewhen from late 2009, somewhere about the 310-post mark – out of just over 840 posts to date – I came across this real gem hidden away in the comments of an otherwise fairly innocuous post[11], pointing to articles I'd recently posted on my Sidewise[12] blog. I'm not quite sure which of those Sidewise posts the commenter was responding to, but it's probably this one:

- **Where have all the good skills gone?**[13]: This article explore a rarely-acknowledged cause of the current 'skills-shortage': an incomplete understanding of the limits of automation.

Back over here on the Tetradian blog, someone named Untra Palkaoff came back with this remark[14]:

[11] http://weblog.tetradian.com/sidewise-posts/
[12] http://sidewise.biz
[13] http://sidewise.biz/skills/
[14] http://weblog.tetradian.com/sidewise-posts/#comment-285

When you use the phrase "labor shortage" or "skills shortage" you're speaking in a sentence fragment. What you actually mean to say is: "There is a labor shortage at the salary level I'm willing to pay." That statement is the correct phrase; the complete sentence and the intellectually honest statement.

Some people speak about shortages as though they represent some absolute, readily identifiable lack of desirable services. Price is rarely accorded its proper importance in their discussion.

If you start raising wages and improving working conditions, and continue doing so, you'll solve your shortage and will have people lining up around the block to work for you even if you need to have huge piles of steaming manure hand-scooped on a blazing summer afternoon.

Re: Shortage caused by employees retiring out of the workforce: With the majority of retirement accounts down about 50% or more, most people entering retirement age are working well into their sunset years. So, you won't be getting a worker shortage anytime soon due to retirees exiting the workforce.

Okay, fine. Some specialized jobs require training and/or certification, again, the solution is higher wages and improved benefits. People will self-fund their re-education so that they can enter the industry in a work-ready state. The attractive wages, working conditions and career prospects of technology during the 1980's and 1990's was a prime example of people's willingness to self-fund their own career re-education.

There is never enough of any good or service to satisfy all wants or desires. A buyer, or employer, must give up something to get something. They must pay the market price and forego whatever else he could have for the same price. The forces of supply and demand determine

> these prices — and the price of a skilled workman is no exception. The buyer can take it or leave it. However, those who choose to leave it (because of lack of funds or personal preference) must not cry shortage. The good is available at the market price. All goods and services are scarce, but scarcity and shortages are by no means synonymous. Scarcity is a regrettable and unavoidable fact.
>
> Shortages are purely a function of price. The only way in which a shortage has existed, or ever will exist, is in cases where the "going price" has been held below the market-clearing price.

I'll admit I was a bit underwhelmed at being told "What you actually mean to say is…", and likewise the irksome arrogance around "the correct phrase … the intellectually honest statement" and suchlike. To be blunt, yes, I had indeed *meant* what I'd said in that post – not merely what Polkaoff had apparently wanted me to say – and I'd said it with good reason and a lot of careful thought, too. Oh well.

Anyway, what follows is a mildly-edited version of my reply[15] there:

For basic-level skills – up to the 100-hour[16] mark, and maybe even the 1000-hour mark – yes, I would probably agree with Polkaoff: the rather crude current concepts of 'the market' would probably provide a practical incentive, and enough of an incentive, for people to shift their skills-base.

But I fear Polkaoff may have badly missed the point for true skills capable of operating in the complex-space and above. There, **one**

[15] http://weblog.tetradian.com/sidewise-posts/#comment-286
[16] http://sidewise.biz/10-100-1000-10000/

of the primary drivers for skills-shortages is not money, but *time*: it takes literally years to bring someone to that required level, and no amount of throwing money at the problem is going to change that. (Okay, there'll be plenty of people who would *claim* to solve it with money alone, but I can guarantee that the skill-levels will be inadequate to the task.) And that, of course, assumes that the aptitude for the skill exists in the first place: for example, just how many people are there in the world who are even *capable* of understanding the deep-math of nuclear physics, or the subtleties of a financial market? For those tasks, and at those levels, the skills-shortage will always be real.

In some of the larger countries – such as the US, Germany or Britain – it'll often seem that there are plenty of people with a high general-education level and a significant amount of experience, ready for retraining to whatever technology might be required. Yet in most of the countries I've worked, the technical-skills pool has always been very small – hence a constant problem of overload, frequently at risk of burnout, and, again, a very real skills-shortage which no amount of throwing money at the problem would resolve.

In short, I fear that those comments imply an over-idealised notion of the capabilities of 'the market', and perhaps not enough experience or understanding of the difference between training and skill, or what the development of real skills actually requires in real-world practice.

To give one very simple rule-of-thumb, if it's possible to do a certification for the 'skill' by a multiple-choice exam, it's not a skill: at best, it's a training – and *not* capable of handling real-world complexity without experienced help. And whilst it *is* relatively easy, and quick, to train people up to do the same tasks that computer-systems already can, it is *not* easy, nor quick, to develop their skills beyond that point. In IT, for example, the people we need most are not those who merely operate the machines, but those who can define the capabilities for new computer-systems, and/or can take over beyond the capabilities of those computer-

systems – in other words, can deal with the real world, rather than some convenient yet literally unrealistic pre-packaged Taylorist abstraction.

There are also several real challenges around motivation and risk-management. What's often forgotten is that whilst personal opportunities may arise from a developing a new skill, there are also very real personal risks around opportunity-cost and the like – and also the risk of investing in a skill that, by the time we become competent in it, the skill itself has lost its market-value. Narrow specialist skills are in high demand, because that's what gets things *done*: but the trap – and the risk – revolves around how long those specialist skills will remain in demand. When the skills-market is stable, over decades or more, those risks remain small, and it's worth putting in the five years or so to become a truly competent specialist in some narrow domain. But when the technologies and context change not on that safe timescale of decades, but of years, months or even weeks, those risks loom very large indeed – and that fact definitely *does* affect how and why people choose to develop some skills rather than others. And for the skills that people *don't* choose to develop, or for which there's not been enough *time* for enough people to develop the required levels of skill, yes, there *are* going to be real skills-shortages – a real scarcity that crass notions of short-term 'scarcity-pricing' and suchlike will *not* be able to resolve.

An assertion that "Shortages are purely a function of price" betrays a serious lack of understanding or knowledge about how the real-world *really* works – such as understanding the complex intersections of the transaction-economy, attention-economy and trust/reputation-economy, as described in another[17] of the SideWise posts. Of course, those who come out with such assertions would be in good company in that lack of real-world understanding, because it seems most current economists make much the same myopic mistakes – which is precisely why our current economy is in such

[17] http://sidewise.biz/market-as-economy/

a chaotic mess…

So apologies if this seems rude, but I truly do not believe that anyone who comes out with an assertion such as "Shortages are purely a function of price" can have thought about this in any depth at all, beyond the most simplistic of price-centred economic models: and hence they really should *not* inflict that lack of thought anyone else. There's a crucial distinction here between competence, non-competence and incompetence[18]: competence I deeply respect, wherever and in whatever form it occurs; for non-competence, I'll happily help wherever I can; but I have no time or tolerance to waste on flagrant incompetence of that kind. I certainly cannot – and will not – take those kinds of critiques seriously, anyway.

Bah

Oh well.

Your comments, perhaps?

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- *Categories*: Business, Enterprise architecture, Society
- *Tags*: Business, business architecture, enterprise, Enterprise architecture, paradigm, skills, Society

[18] http://weblog.tetradian.com/competence-noncompetence-incompetence/
[19] http://weblog.tetradian.com/skills-shortages-and-market

Price, value, worth and cost

It didn't look like much. Not worth much, certainly. It had been a gift from a friend, a former colleague: I'd had it for years, kept it reasonably safe in an old battered ring-case, until finally it was lost somewhere.

In appearance, and in fact, it was just a small wedge of dull brown sandy rock, maybe half an inch long, and quite a bit less than that in both width and height. It was kind of T-shaped, a bit like where the vanes of 'desert rose[20]' crystal intersect, broken off from an underlying base, and with little glittery bits of embedded sand showing through where the edges had been snapped off.

Yet for all that, it was out of this world. Literally. To be more precise, it was from the *other* world that's shown as the foreground in this so-famous image…

[20] http://en.wikipedia.org/wiki/File:Roses_des_Sables_Tunisie.jpg

To which, of course, there's a story attached. :-)

Way back when, I'd been near-obsessed by anything to do with astronomy and space. At school, a close friend's father ran the university's radio-astronomy observatory[21]; in later decades, he became a Nobel Laureate for Physics[22], and, eventually, the Astronomer Royal[23]. It's where I first came across computers: I remember being allowed, at a very early age, to print my name on six-channel punch-tape. I had my own telescope; even as a teenager got involved in academic and observational arguments[24] about the formation of the moon; for a few years was also a keen member of the British Interplanetary Society[25] - a serious engineering-oriented group of which my mother, it transpired, had also been a member when it first started, way back in the late 1930s. So yeah, kinda committed, you might say.

[21] http://en.wikipedia.org/wiki/Mullard_Radio_Astronomy_Observatory
[22] http://www.nobelprize.org/nobel_prizes/physics/laureates/1974/
[23] http://en.wikipedia.org/wiki/Astronomer_Royal
[24] http://britastro.org/baa/
[25] http://www.bis-space.com/

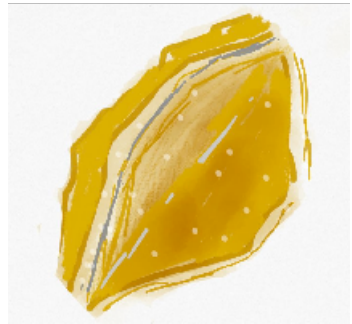
Late at school, I'd still perhaps intended to take up a career as a professional astronomer: but reality was that my maths wasn't up to it, and I needed to try elsewhere. Which took me on a different path, to a different college, and, eventually to long, shared conversations with a technician there whom I'll call Hans. (There's a risk that, even after all this time, some people might get into trouble for what follows, so best I don't use real names here.)

He was German. Back in the late 1930s he'd been an apprentice engineer, working on hydraulic pumps for everyday agricultural tractors. Come the war, he found himself posted to Peenemunde[26], working with von Braun[27]'s team there, developing fuel-pumps for rocket motors. (They'd succeeded in their brief, he said, whilst at first the plumbers didn't - hence some very *interesting* explosions on the launch-pad…!) As the war came to a close, the whole team had decamped to the west to try to evade the Russians; by intent, he was captured by the British, spent some while in a PoW camp in Britain, and, with his home now in East Germany, had simply stayed on after his release. He was one of the few of his cohort that had managed to evade being caught up in Operation Paperclip[28]; with some difficulty, he'd convinced his British interrogators that he really would *not* get involved in designing military missiles, and had taken a much more mundane job instead.

But he kept in close touch with his former colleagues - which is why our small provincial college was one of the few in Britain to receive a tiny fragment of moon-rock, brought back by Apollo 11. (That item arrived with its own security guard; in the meantime, Hans' own personal piece arrived in the ordinary mail…)

Some months later, he took me to one side, and, with an unusually broad grin, said "This is for you". And he gave me a tiny package, wrapped in paper-tissue. Straight away I knew exactly what it was - even though it didn't look like much at all:

[26] http://en.wikipedia.org/wiki/Peenem%C3%BCnde_Army_Research_Center
[27] http://en.wikipedia.org/wiki/Wernher_von_Braun
[28] http://en.wikipedia.org/wiki/Operation_Paperclip



It's what I'd described earlier: much smaller than that sketch above, a small T-shaped wedge of rock, dull-brown, seemingly a bit burnt, with little glittery bits of sand that, if I wasn't careful how I handled it, came off at the touch. It had been part of the contingency-sample[29] from the Apollo-12[30] mission, apparently: taken from directly under the lander's exhaust, it was pretty much useless for science, hence quietly - if very much unofficially - kept aside for private mementos and private gifts. We were promised more from the upcoming Apollo 13[31] mission, he said - but as everyone knows, it never got there. Soon after that, it was time for me to move on to another college, and we soon lost touch. These things happen, of course.

I kept it for quite a few years, tucked away in that old ring-box. Not surprisingly, it was a focus for quite a lot of attention, and some great conversations. (Without my knowledge, someone broke off a tiny fragment and tried to smoke it - which kinda tells you a bit more about what it looked like, and the kind of people I rubbed shoulders with in those Glastonbury days. :-)) Eventually it was starting to look a bit worn - a bit finger-greasy from all the handling, and more and more of the glittery little sand-particles rubbed away - so I gave it to a jeweller-friend to make a mount for it, for better protection. And that was the last I heard of it, or him: when next

[29] http://en.wikipedia.org/wiki/Apollo_15_operations_on_the_Lunar_surface#EVA-1
[30] http://en.wikipedia.org/wiki/Apollo_12
[31] http://en.wikipedia.org/wiki/Apollo_13

I enquired, he'd left the country, and my little piece of moon-rock was nowhere to be seen. Thrown out with all the other rubbish of the move, most likely: after all, given who I was, not everyone would be likely to believe that it was what I said it was.

And truth be told, it's possible that the whole thing *was* a fantasy, of course. There was enough evidence to indicate that it was indeed all real: but yeah, Hans could perhaps have been taking all of us for a ride - not just me, but the college administration, and many others as well.

Yet it actually doesn't matter: that's the whole point here. It's what it was *worth*, to me and to others, that actually matters.

Which brings us to an interesting point that we come across very often in enterprise-architecture and elsewhere: ***value, worth, cost and price are not the same***.

Many people seem to treat each of those terms as synonyms for each other: in Australia, for example, if people ask "What's it worth?", what they actually mean is "What's the price?" Yet there *are* key differences between those terms; and if we *do* treat them as synonyms, we're likely to create confusions from which there is often no clear way out. And it might be helpful to use this little piece of putative moon-rock as an example to illustrate the real differences between those terms.

The **value** of something resides primarily in the services that it can enable. In the case of that moon-rock, its scientific value was close to nil. It would have been damaged by the blast, heat and chemistry of the rocket exhaust: by comparison with the pristine materials available further from the lander, it was almost useless. But that was the whole point of the contingency-sample: if they'd had to leave straight away, at least it would have been *something* from the place. Yet since they *didn't* have to leave straight away, all the real scientific value was from other rocks elsewhere.

For me, the value - the '*services*' that it enabled - lay primarily in the way I could use it as a conversation-starter. There wasn't much

else I *could* use it for, really. :-)

The **worth** of something probably resides less in the thing itself, but in what it *means* to someone. In that sense, value and worth are similar, and often related, yet not quite the same. To the scientists, for example, this little piece of moon-rock was all but valueless *and* worthless, because it could help very little towards what *they* regarded as 'meaningful'. Yet to others, it *symbolised* all of the relationships, the memories, pride, achievement, and much more - as can be seen in the way that small pieces were passed to other nations' embassies as an overt, even ostentatious, display of politics and prowess.

For me, in my own much quieter way, it symbolised many things too: my lifelong passion for cosmology and space, my friendship with Hans, my commitment to the 'bigger-picture' view of the world, and much more. That's what it was worth, to me. And yet, when it was lost, that didn't much matter - the *memory* of that little piece of moon-rock was, and still is, almost as much of an anchor for those connections as the physical thing itself had been. Do I have the thing itself now? No. Do I still have the *worth* of that thing? Mostly, yes. That's the difference there.

The **cost** of something is the sum of all of the effort needed to create it, find it, move it around, act on it, whatever, and in every sense - including emotional and aspirational ('spiritual') costs of relationship and meaning and the like. For example, the costs included the effort and expense and everything else in NASA's enterprise to get vehicles and people to, on and from the moon, and everything that led up to that end - including the political will of people like President John F. Kennedy, who committed the US as a whole to that task, and, further behind it, the military and other fears that drove the 'space race' in the first place. Further back again, for Hans, the costs included things like the fear created for him during the Allied bombing-raids at Peenemunde, and - for him, and for many others on von Braun's team - the shame of having been entrapped in war-work, when what they'd originally

aimed to create (and, ultimately did achieve) was a full-scale space-programme.

For me, of course, the costs might at first seem trivial: after all, it was just a gift, and that was it. Yet behind that, there *were* very real costs too, no matter how enjoyable most of them might have felt at the time. For example, the 'meaning-effort' to find astronomy and space interesting in the first place; the effort involved in all of that study, to develop understanding of the issues and what (often very little) part I could play within them; the effort of conversations, and of building person-to-person connections with my schoolfriend, and his father, and Hans, and with many others too within that overall context. Mapping out the full set of costs, and the interactions and interdependencies between those costs, can often be very complex indeed - but sometimes, to make sense of a context, we do indeed have to go quite a long way down the rabbit-hole…

The **price** of something is… well, a *mess*, really. It's supposedly a 'valuation in monetary terms', but it's probable that the most honest description of price and pricing is that it sits somewhere between a random guess, wishful-thinking, self-delusion, and, too often, outright fraud. Crucially, it describes a *subset* of costs - usually those most amenable to a possession-type model, aligning far more with the physical and, to some extent, virtual (informational dimensions of assets, and often ignoring or excluding all relational and/or aspirational dimensions - yet also attaches or focusses on arbitrary concepts such as 'scarcity'. In the case of that little piece of moon-rock, technically no price should be available, since in principle it always remains the property of NASA. The *nominal* price - total monetary-cost of missions divided by total mass returned - should be around US$50 a gram[32] at 1970s figures, if my back-of-the-envelope calculations are anywhere near correct; but I have seen prices quoted of upwards of US$250,000 for even a piece as small as that one, simply because of its rarity on the so-called 'open market',

[32] http://www.astronomycafe.net/qadir/q1019.html

or anywhere at all.

For me, the price was zero. *And that was the whole point*: it was a gift, from friend to friend. If a price had been put on it, it wouldn't have been a gift any more - not of that type, anyway. And the relationship would have been different, too: *the price of the gift would have clashed with the worth of the gift.*

To put all of this into a more everyday perspective, consider the ***value, worth, cost and price of a house***:

– The *value* of a house is the services that it delivers. Interestingly, the effective value of an average house or apartment in Britain - floor-space, room-size, garden-area, facilities and so on - reached a peak somewhen around the 1980s, and has actually been going down ever since.

– The *worth* of a house is in the emotional and other drivers that it supports and represents. This is, by definition, highly subjective.

– The *cost* of a house is somewhat more complex to assess. In monetary terms only, the cost is the sum of all costs to build and maintain. More realistically, we also need to take many other forms of cost into account, such as loss of amenity-space to others, damage or loss of history, impact on future generations, and much, much more.

– The *price* of a house is an arbitrary monetary 'valuation', based primarily on spurious and often delusory notions such as microeconomics[33] and the like, and which may bear little to no connection with the value, worth or cost of the house.

In short, *the price of a house is not the same as the cost of a house is not the same as the worth of a house is not the same as the value of a house*. They're *all* different from each other.

And the same applies to *everything* - the price, cost, worth and value of anything at all.

[33] http://en.wikipedia.org/wiki/Microeconomics

Hence, for enterprise-architects, ***don't mix these terms up***, or use any of them as a synonym for any other. They represent very different things, very different attributes of or assigned to an entity - and getting this wrong will *guarantee* problems for someone further down the line.

That's it for now: over to you for comment, perhaps?

Source (Tetradian weblog)

- *Date*: 2014/01/07
- *URL*: price-value-worth-and-cost[34]
- *Comments*: 4
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- *Tags*: Business, economics, price, value

[34] http://weblog.tetradian.com/price-value-worth-and-cost

RBPEA: Why imagine a world beyond money

In the previous two posts in this series on background behind futures for[35] enterprise-architecture[36] (see video[37]), we explored the idea of a focus on value[38], rather than money, as the anchor for our architectures; and then set out to imagine a world beyond money.[39] But *why*? What's the value in doing this?

One of the core concerns of enterprise-architecture and the like is about management of resources, particularly at larger scale and over longer periods of time. Another core concern is about guidance of change, often across the entire scope of an enterprise. For these and other concerns, probably our most common concept is to describe everything in monetary terms: price, cost, budgets and the like. In business-architecture, the money - where it comes from, where it goes - is often almost the only thing we'd be expected to think about. Money as the main metric for everything; money as the main means for managing resources.

Yet how well does it *actually* work, to satisfy all of those needs?

In those previous two posts we saw that money *doesn't* work well as 'the metric for everything', the sole measure of value: as we saw, there are too many important things that get hidden from view if we focus only on money. So maybe the same might apply to the money-system itself, as a means for managing resources? Maybe there are some hidden assumptions there that we might need to bring to the surface?

[35] http://weblog.tetradian.com/2016/09/12/ea-near-futures/
[36] http://weblog.tetradian.com/2016/09/20/ea-furthe-futures/
[37] https://youtu.be/p7f7i61ZMsY
[38] http://weblog.tetradian.com/2019/06/30/a-taste-of-value/
[39] http://weblog.tetradian.com/2019/07/01/rbpea-imagine-a-world-beyond-money/

In which case, let's explore this with another practical experiment…

First, let's imagine the key steps in the stereotypic human life-sequence - from child or teenager still living at home, to first leaving home, to moving in with a partner, to having kids, the kids at school, the kids themselves leaving home, and onward to retirement and old age.

(This experiment often works better if we make this personal: so imagine that this is *you* we're describing here - your own history so far, and your expectations for the future.)

Given that, let's apply that test of '**What do you need?**': what were, are or would be the ***resource-needs*** that you or others have, for each stage in that life-sequence?

For example, as a teenager, most of your needs would have been met by someone else - your parents, most usually. (Note we're talking about *needs* here, not *wants* - the wants of a teenager are often limitless!)

So when you first leave home, what are your needs then? What are the changes? For most people, it's probable that your needs would suddenly skyrocket: you'd need somewhere to live, the deposit for the rent, and the furniture and bedding and kitchenware and all the other sheer *stuff* that makes a household work.

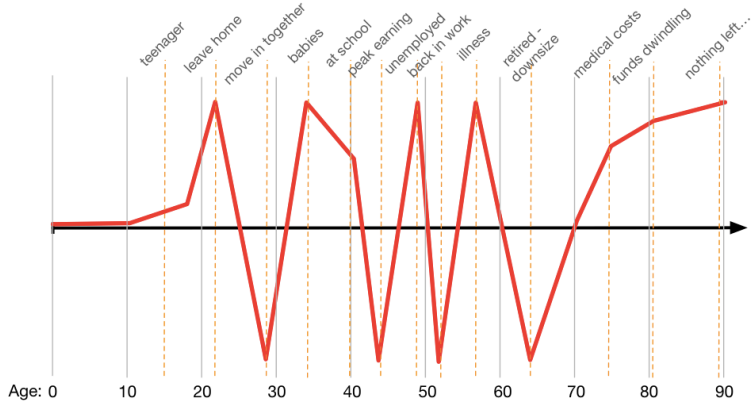
What happens when first you move in with a partner? What are the changes at this stage? For most, it's probable that your needs would plummet, as you not only gain economies of scale - two for the price of one, for a lot of things - but you probably too *much* of everything from when you each lived on your own.

Keep walking through that life-sequence: what happens when babies start to arrive? When the children go to school? On and on through the whole of that sequence… And perhaps throw in a few periods of illness or unemployment along the way, just to add a bit more detail. What are your needs, at each stage?

Once you've explored that sequence, map it out as a simple graph,

with age in years as the x-axis, and level of needs, from low to high, as the y-axis. (If you prefer, map the y-axis in terms of *expenditure*, of monetary outlay to satisfy those needs - in our money-based economics, it comes to much the same thing.)

My guess is that your graph will look something like this, with wild swings from one extreme to the other:

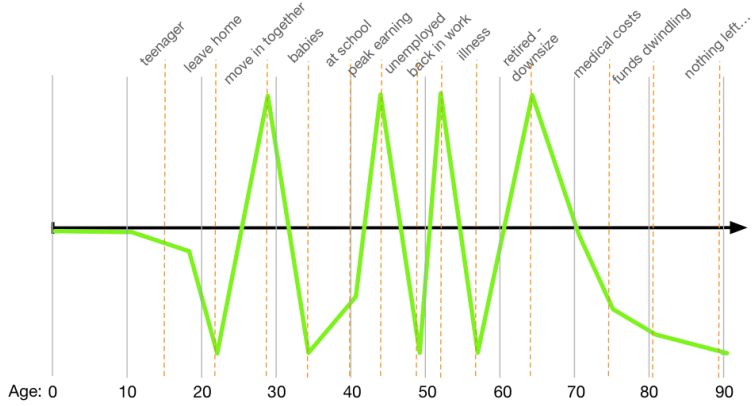


For the next part of the experiment, describe or imagine the actual or probable ***resource-availability*** for each stage in that same life-sequence - teenager, first leaving home, moving in with a partner, and so on. Again, perhaps add a few periods of illness or unemployment along the way, to make it a richer picture.

The simplest way to do this is to map it out in terms of *monetary income* - what pay or other income you have, at each stage. Model this as *your own household-income*, you as an individual, as a couple, as your own immediate family: keep others out of the picture at present.

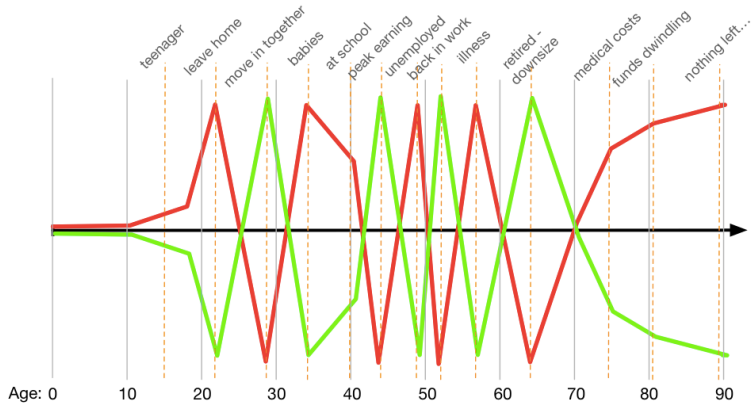
Once you've explored that life-sequence in terms of likely resource-availability, map the result out in the same way as for the previous graph. Again use age-in-years as the x-axis, but this time, rather than resource-needs or expenditure as the y-axis, show resource-availability or income.

My guess is that this time your graph will look something like this:



Again, a lot of wild swings there, often from extreme to extreme.

For the final step in this exercise, ***compare resource-needs to resource-availability*** throughout that stereotypic life-sequence. The simplest way to do this is to put the two graphs together - a combined graph, with a red trend-line representing typical resource-needs at each point in the life-sequence, and a green trend-line representing typical resource-availability at the same points in that sequence. Hence if we combine those two example graphs above, what we'd get is this:



Yeah - it's an almost perfect mismatch. Whenever we *least* need resources, we're *most* likely to have them; and whenever we *most* need resources, we're *least* likely to have them. To put it another way, what this shows us is that the natural tendency - the 'gravity' - of our entire economy is to move resources to wherever they're *least* needed.

As a means of managing shared resources, it's not merely a poor system - it's arguably *the worst system that we could possibly devise.* And yet that's the inherent nature of the system that we live in at present, day after day, year after year, for all of our lives.

Ouch...

To make our economics at least *seem* to sort-of work, we need to counter that natural-gravity of the system. Hence the huge infrastructure of banking, insurance, tax and more, to try to move resources around to when and where they're actually needed. Hence also money itself, as a sort-of standardised means to measure, monitor and manage that time-shifting of resource-needs and resource-availability. Yet that infrastructure is colossally expensive: put all together, it already accounts for around half of all 'economic-effort', and still rising fast. All of it dangerously fragile, wide-open to all manner of misuses. And all of it is colossally inefficient, given

that all of its effort is pushing against the natural-gravity of the entire system.

In short, as a means for managing our shared resources, **our current money-based economics* doesn't work***. Not well. Not for most people. Probably not for anyone, in the longer run.

Ouch…

We *definitely* need to do better than this.

Which is *why* we need to imagine a world beyond money.

The next question, of course, is *how*.

Which is where enterprise-architecture comes back into the picture…

Implications for enterprise-architecture

We've seen in the previous posts that we *can* imagine a world beyond money.

We've seen here *why* we'd need a world beyond money.

The next question is *how* we could build a world without money. Or, from our perspective, the *architectures* for a world beyond money.

Which, for most of us, might seem an impossible task. Way out of scope for anything *we* might do.

Actually, no.

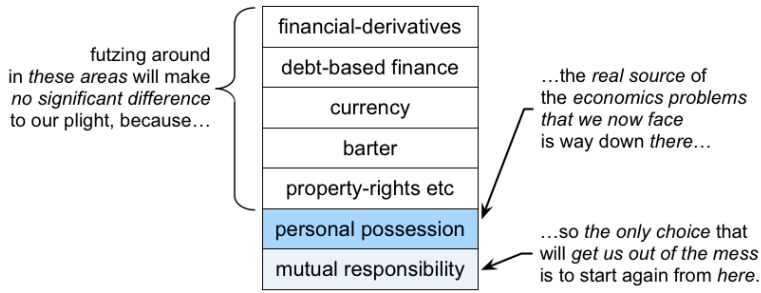
Because money isn't actually the real problem here. Nor is the money-system, or anything built upon it.

It's not even anyone's fault: there's no evil 'Them' to blame here.

It's just us. All of us, doing what we do. But doing what we do, *in context of a bunch of unquestioned myths* about 'how the world really works'.

Hence as architects, the one most useful thing right now that we can do about this is to worry less about what's happening on the surface, and instead start to explore the hidden assumptions behind those myths.

The catch is that the myths we most need to explore and resolve are a lot further down than we might expect:do echo out into every part of every architecture are a lot further down than we might expect:



Yet the effects of those unexamined myths do echo out into even the most IT-centric of 'enterprise'-architectures - so even up there at the surface levels, the outcomes of those deep-level explorations can deliver *huge* benefits to the efficiency and effectiveness of our everyday architectures. Hence, again, this *matters* for our work.

As in the graphic just above, the key emphasis around concepts of *ownership* - in particular, the crucial distinctions between *possession*, versus responsibility or *stewardship*. For example, it doesn't take much exploration to recognise that there's no way to make a possession-based economics sustainable in the longer-term - whereas a responsibility-based economics can be made sustainable indefinitely. And again, getting clear on what works and what doesn't at larger scales can provide real value to the architectures

we build for our organisations.

But where do we start? How do we find the '*How*'?

One worthwhile place, perhaps, is with what we'd explored in the previous two posts: that concept of *value*, from the 'A taste for value' post, and that key question of "What do you need?", from the post on 'Imagine a world beyond money'. And apply all of that, to look at 'the economy' as a whole.

So let's do that, in the next and final post in this series. See you there!

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[40] http://weblog.tetradian.com/rbpea-why-imagine-a-world-beyond-money