

## **A case for the consolidation of a 'Single Buildings Engineering' Industry.**

**1. The inefficiencies and 'out-of-date' practices of the present silo'd state for the delivery of buildings**

**A long standing condition of building construction as identified in 1994 by Latham, Eden and 'The Construction Act' in 1996 and, recently again, by Morrell**

**A situation that once existed in the Ship building and Aircraft construction industries. Now thankfully resolved to their clear benefit.**

**2. The particular inability of the Building Services sector to deliver Energy efficient, reliably comfortable buildings that meet the needs of users and of society at large. The result of its own silo'd working practices.**

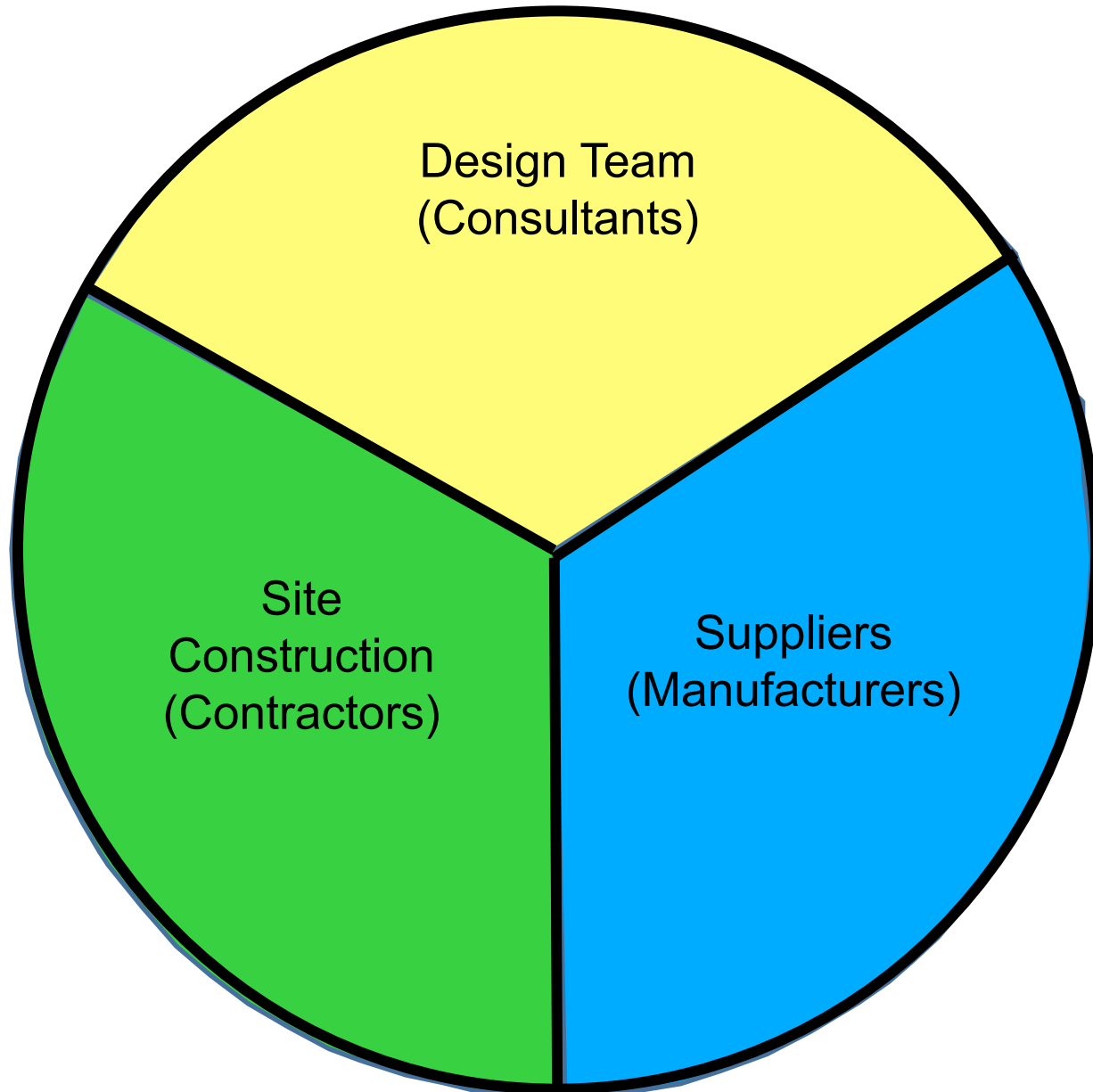
**Design, Construction and Manufacturing are rigidly sectioned and the crucial Operating, Maintenance and Up-grading is left remote to its own devices with, often, disastrous consequences.**

**Illustration 1**

**The first urgent change must be to this structure so that Design begins with reference to 'Operational experience' and checks of Manufacturing technologies and buildability, before flowing through to deliver to Operational engineering.**

**Illustration 2**

# Traditional Construction Delivery



Discordant  
Disjointed  
Confrontational  
Wasteful

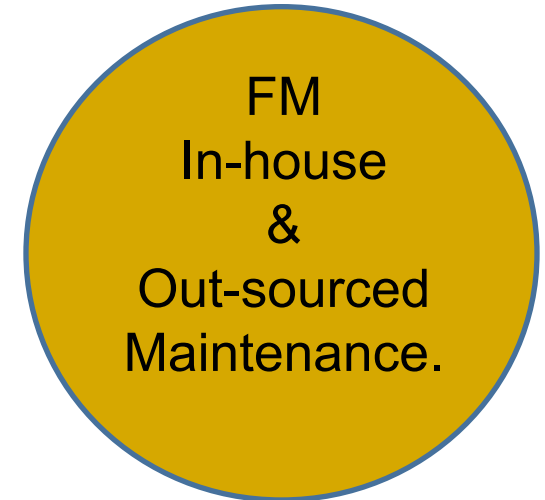
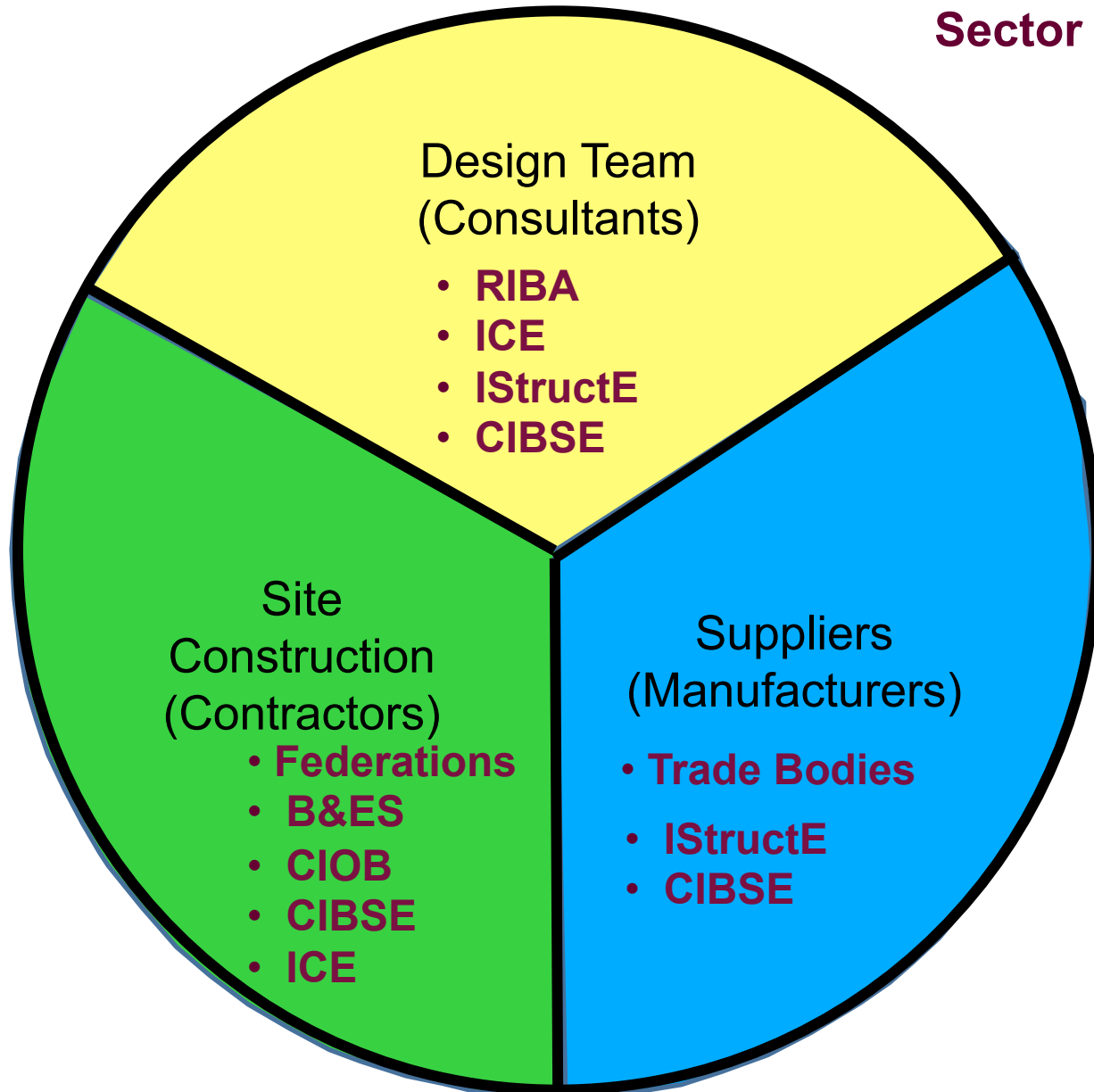


Figure. 1a.

# Traditional Construction Delivery Sector Representation



Discordant  
Disjointed  
Confrontational  
Wasteful



Figure. 1b.

Professional Sectarianism is buried deep

Who represents Construction?

# Harmonised Practice

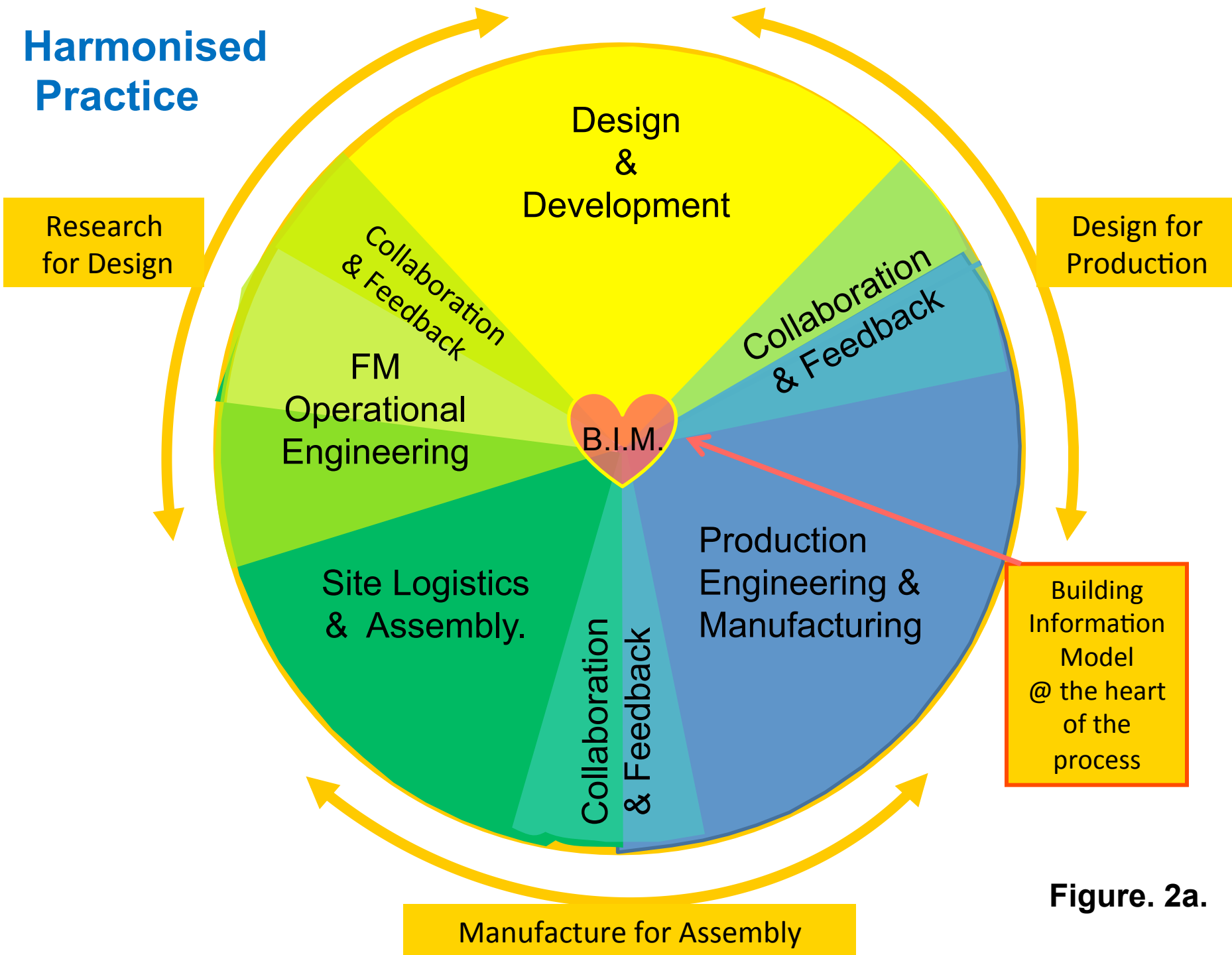


Figure. 2a.

# Harmonised Practice

Research for Design

Design for Production

Design & Development

Collaboration & Feedback

Collaboration & Feedback

FM  
Operational Engineering

B.I.M.

Site Logistics & Assembly.

Production Engineering & Manufacturing

Collaboration & Feedback

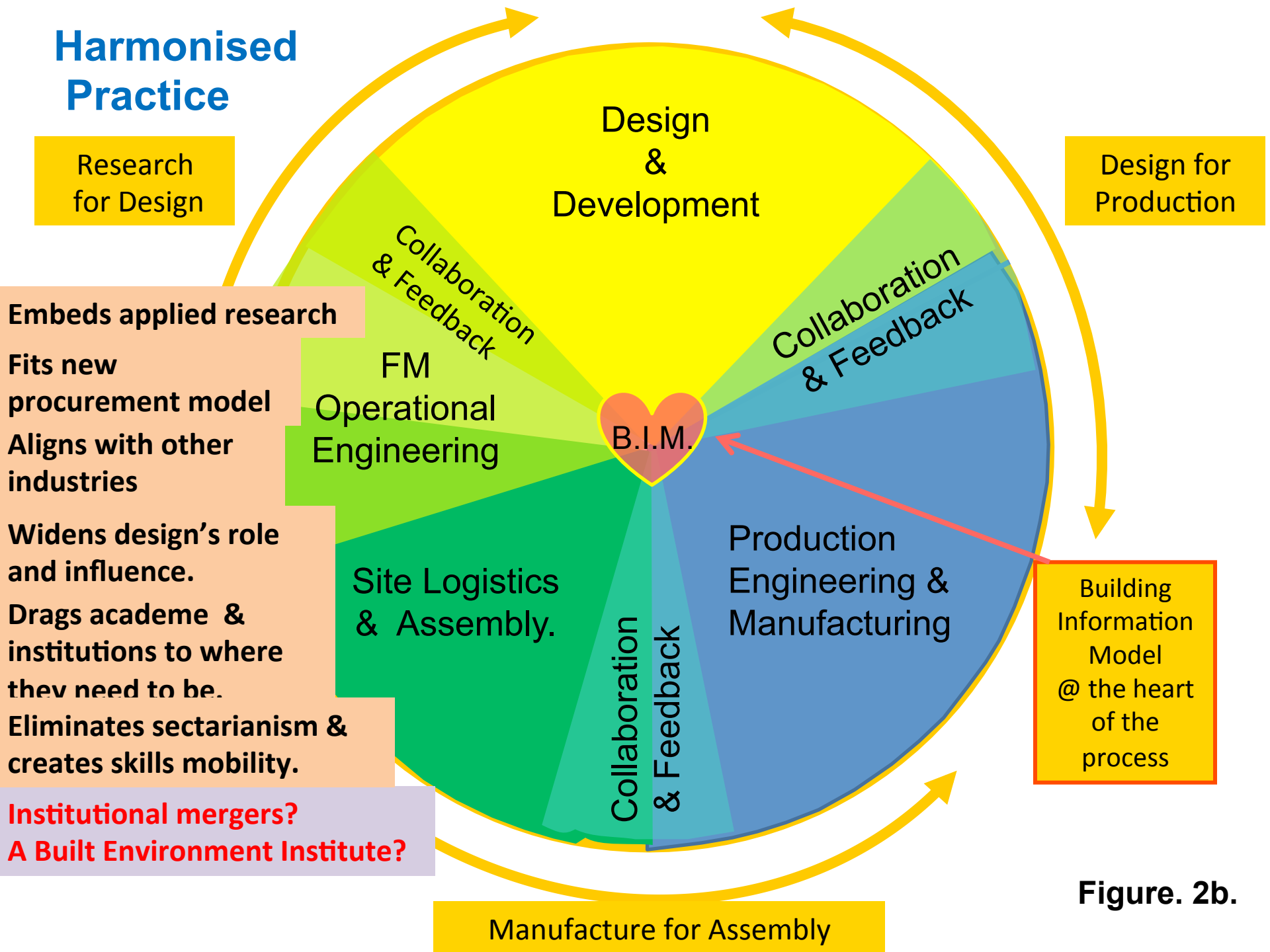
Building Information Model @ the heart of the process

Embeds applied research  
Fits new procurement model  
Aligns with other industries  
Widens design's role and influence.  
Drags academe & institutions to where they need to be.  
Eliminates sectarianism & creates skills mobility.

**Institutional mergers?  
A Built Environment Institute?**

Manufacture for Assembly

Figure. 2b.



**3. The vitally important necessity to adopt 'Modern Building Methods', similar to the Ship and Aircraft industries.**

**Design, Manufacturing, Assembly and Operational activities must flow seamlessly through one constant BIM's control process.**

**"Site is the last place to expect to achieve reliable, accurate and efficient work". A building site, like a modern Shipyard, must be a place for the assembly of pre-constructed, tested, fully functioning Buildings modules.**

**4. The necessary changes require Investment which will only be forthcoming, in sufficient amounts, when the Industry is seen to have addressed its present 'parlous' state.**

**A consolidated 'Buildings Engineering' industry with an appropriate professional Institution, would make far better use of funds for development of, for example; BIM's, Façade Engineering and 'Factory pre-construction.**

**Essential, on-going, ICT development costs are an ever increasing reality and sharing these, as much as possible, would make them affordable.  
Commercial and export potentials will also help attract investment.**

**5. An effective Construction industry must have properly educated people of a wide span of expertise and ability, ranging from top graduates to practical workers.**

**Currently, in UK, around 3 times as many Architects as are needed are graduating, whilst less than half the number of 'required' Engineers are being produced. Unfortunately; Bath University abandoned its unique Architecture and Engineering course**

**Absence of a 'Single recognised Buildings Engineering' industry with its appropriate education and qualifications, exacerbates this situation. For example; few, if any, Architectural students would opt to graduate in 'Building Services engineering'. Yet many would find their true calling in 'Buildings Engineering'**

**6. It would be naïve to imagine that a new Engineering industry could be 'invented' in construction. But consolidation of its existing engineering counterparts would 'innovate' it into existence.**

**Amalgamation of 'Structural' and 'Services' engineering as a professional Institutional body, would be an innovational spring-board towards that single 'Buildings Engineering industry'**

**The remit for the 'Buildings Engineering' industry would extend from Operational engineering for the running, upkeep and upgrading of buildings, thro' design development and innovation, to factory manufacture and site assembly**

# A Consolidated Buildings Engineering Industry

Co-located in accessible premises  
In Central London

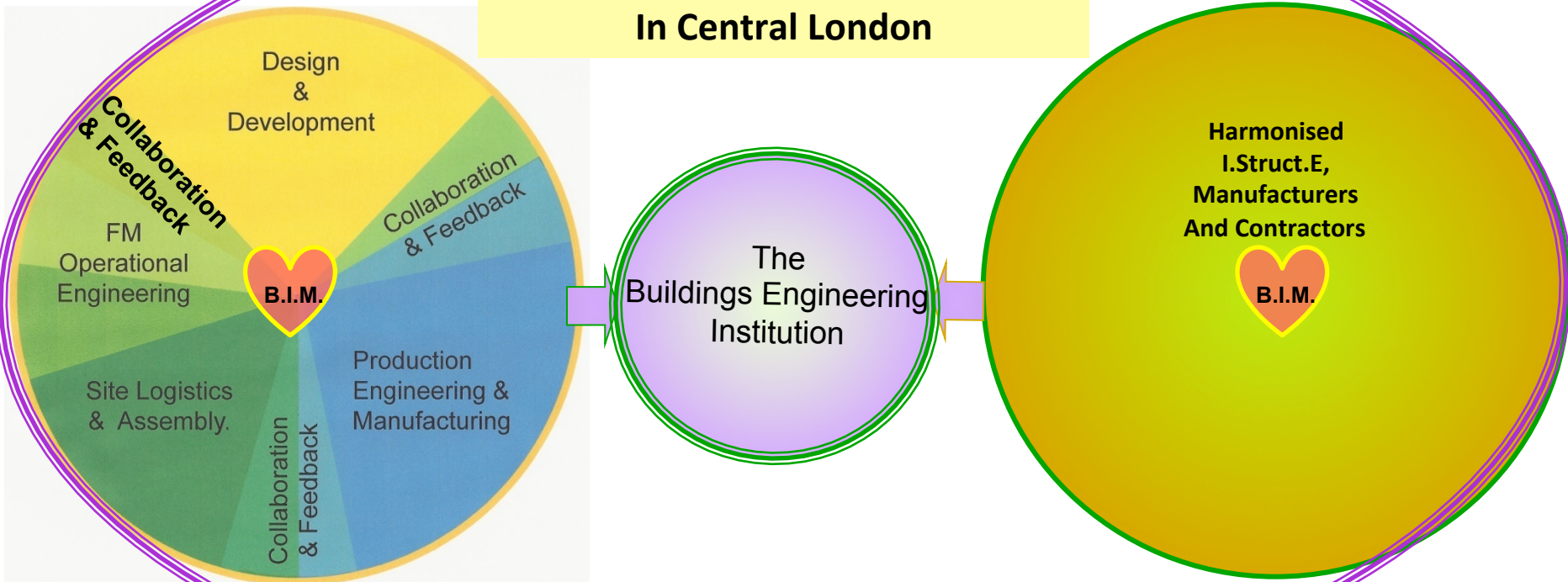


Figure. 3.



**7. The amalgamation of;  
A fully encompassing CIBSE  
with a similarly inclusive  
I.Struct.E into a single  
professional Institution  
(R.I.B.E.) would greatly help  
take building construction  
towards where Latham,  
Eden and Morrell advised it  
must go, for the proper  
delivery of the buildings we  
need.**

**Such an amalgamation  
would then enable the  
Architectural profession  
(R.I.B.A.) to see how it can  
address its own need for  
changes to its regulatory  
framework, education and  
'Gateway';  
Possibly for the  
development of a mutually  
compatible  
'Built environment'  
profession.**

**As well as delivering the  
buildings needed; the  
assembly of such a  
substantial centre of  
knowledge, expertise and  
professional behaviour  
would have a very powerful  
influence on government  
policies.**