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Citation: BATEMAN, N., 2017. Operating model: an exploration of the concept. Loughborough University: Loughborough, UK, 13pp.

Additional Information:

- This report was commissioned and funded by OEE Consulting.

Metadata Record: <https://dspace.lboro.ac.uk/2134/26654>

Version: Published

Publisher: © Loughborough University

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Please cite the published version.

Operating Model: An exploration of the Concept

Dr Nicola Bateman nab34@le.ac.uk

Centre for Service Management
School of Business and Economics
Loughborough University

21.9.17

Introduction

The idea of an Operating Model has come to the fore in the last five or so years and the purpose of this paper is to produce a meaningful definition and framework of what Operating Model means in a management context¹. There is a need for this definition as much of the material referring to Operating Model is consultancy led and so would benefit from an academic interpretation. This interest by commerce has not been reflected in the Operations Management academic community, at the recent European Operations Management conference (Euroma 2017) consisting of 412 papers, 578 delegates from 42 countries Operating Model was not mentioned either in the title or key words of the papers. Searching Operations Management journals such as the International Journal Operations and Production Management (IJOPM) very little mention is made of the term Operating Model. To address this lacuna this paper explores how the idea of Operating Model has been defined, in doing this a robust exploration of Operating Model is offered. The paper goes onto explore how Operating Models can be tested for efficacy.

A systematic search of relevant journals such as IJOPM, JOM (Journal of Operations Management), and IJPR (International Journal of Production Research) from their start of publication date for the term Operating Model reveals few references – IJOPM 6 references, JOM 14 and IJPR 6. Typical mentions are casually made without much reference made to Operating Model's exact meaning for example in Datta and Roy (2011) a paper exploring operations strategy and effective delivery for product/service bundles, Operating Model is mentioned as part of "the implications of shifting away from a manufacturing oriented operating model" p 585. Interestingly the authors go on to outline a "service delivery framework" which might have been better termed an Operating Model. Silvestro, and Lustrato (2014) in a paper about the role of finance in supply chains mention the term Operating Model in an appendix of research questions "Describe your organisational unit in terms of:

¹ The term Operating Model has been used for many years and early references can be found from non-management, typically engineering or agricultural sources such as the 'operating model' of a boiler SIEPS (1836).

...Operating Model (explanation of service delivery system)” p 323. In an overview of OM methodologies (MacCarthy, Lewis, Voss, C. and Narasimhan, 2013) Mike Lewis states “Personal experience with analyzing, clarifying and disseminating the Zara Operating Model strongly reinforce the power of good stories” p 940 but does not define the term.

Given the lax use of the term Operating Model the need to define it might be questioned. However, this need is driven by the increasing acceptance of the term ‘Operating Model’ in commerce where Operating Model has become common currency in industry for example, Tesco in (McNamara 2011) who outline their Operating Model describing it as “...how we do things in Tesco” and also some use in the mainstream media for example in The Guardian outlining, how “PricewaterhouseCoopers rolled out a template called an “operating model assessment” across numerous (local) councils” (Peretti 2016). There is also a received need to link strategy to operations using and the Operating Model as the way to achieve this is also being made for example by Garton (2017) in Harvard Business Review. The Operating Model is often mooted as a bridge between strategy and operations EY (2016) and Bain (Cooper, Dhiri and Root 2012).

It seems as though there is an implicit understanding of the term Operating Model, for example it is mentioned both in papers where Operating Model might be considered a core concept and also those where is referred to but the principle focus of the paper is on another technical aspect of operations management for example Zhang, Schmidt, Schlick, Reuth, and Luczak, (2008).

The three main sources for Operating Model definitions are; consultancies, companies designing and defining their own Operating Models and academic sources. The latter is based principally in the Information Technology discipline with a paucity from the OM (Operations Management) world. This IT influence is exemplified in that generally Operating Models are referred to in the existing literature in consultancies, companies own literature and academic sources as OM (Operating Model) which would likely be inappropriate in operations management literature because the potential for confusing of terms. Here Operating Model will be referred to as Op. Mod. and operations management as the predating term OM².

Literature of Operating Model

The origin of the term Operating Model in a business context is not clear and is likely to have been coined in a commercial organisation and thus not publicly available. An early example of a similar term can be found in Linder and Cantrell (2000) who use the term ‘operating business model’ as the operational manifestation of the business model, they provide examples of different operating business models and also provide an emphasis on how organisations change and keep up to date their business model. However, the first user of the term in an academic source is probably Jeanne Ross from MIT who in Ross (2005) stated “*To make IT a proactive – rather than reactive – force in creating business value companies should define an operating model*”. In her paper she goes on to

² Operations management as term can be found in many texts in 1940’s but started to emerge more strongly in the late 1970’s (Wild 1979) and early 80s with both JOM (Journal of Operations Management) and IJOPM (International Journal of Operations and Production Management) vol. 1 in 1980.

define four alternative Operating Models based on the level of standardization and integration. This derives four categories of model: diversification (low standardization, low integration); unification (high standardization, high integration); coordination (low standardization, high integration) and replication (high standardization, low integration). By standardization and integration Ross can be taken to mean standardization/integration of the *IT requirements* of operations rather than standardization/integration of actual operations. This is demonstrated by the example cited for coordination (low standardization, high integration) which is Toyota. Most operations oriented people would describe Toyota as having high operational standardisation with heavy reliance on the use of Standard Operations Procedures to support their renowned quality systems (Monden 2011). Of course there will be many organisations where their IT systems and actual operations level of standardizations/integration will coincide. But this difference in view point particularly of standardization shows the IT origins of the term Operating Model and highlights the need to more fully explore an operations oriented definition of Operating Model. Since these IT origins Op. Mod. has been more widely adopted particularly for the operationalisation of strategy and business models, thus the existing definitions need to be more fully expressed in operational terms to be truly meaningful for the organisation and also for operational people likely to be involved in the design of Operating Models.

This IT lens is further revealed in briefings by companies such as Boeing, Tesco and Prudential. These tend to originate in their Information's systems department and focus on for example for Tesco "IT investment leverage across the entire group" McNamara (2011) and Prudential (Baker and Narayanan 2004) their paper is titled "Building the Integrated Operating Model Common IT Platform and Processes" and is clearly focused in this area exploring how IT systems can support their business model. An example of a company interpretation that is IT based is given by DuPont (2014) who identify seven elements to an operation model; business capabilities, key activities, organization, key partnerships, key resources, channels and cost structure. These seven elements are not defined particularly in operational terms but are derived from strategyzer.com's business model (strategyzer 2017). This can be compared with other elements of Operating Model frameworks for example; Operating Model Canvas (Campbell, Gutierrez Lancelott 2017) see Table 1.

The model part of term Operating Model also needs exploring, in that an Operating Model is not strictly a model in the sense it is not an imitation of the real world (unlike a model train set or a business process simulation such as simul8). Rather the Operating Model summarises the system of operations, thus the term operating system might be a better descriptive term, and originally this was used in this context by Wild (1979) in his seminal book on Operations Management where he defines "*An operating system is a configuration of resources combined for the provision of goods or services*" p 3. Unfortunately for us now, that term is taken and ubiquitously defined in terms of "*the low-level software that supports a computer's basic functions*" p 1002 OED (2008). However – for practical use most businesses use a representation of an Operating Model that is a simplification of the Operating Model rather than the Op. Mod. itself. This is exemplified in Campbell et al. (2017) who in their opening chapter (pp 4 & 5) have the one page, ten page, hundred page and thousand page Operating Model. These are not Operating Models of different size but are progressively more detailed representations of the same Operating Model.

Definitions

From the literature above a number of definitions can be collated:

“How do key elements of the business **work together** (DuPont’s emphasis) to realise strategy and the business models?” (DuPont 2014 for Boeing) (p 12)

“...drives the foundation for execution” from Ross et al.2006

“An Operating Model dictates where and how the critical work gets done across a company” Cooper Dhiri and Root (2012) at Bain and Company

“The operating model describes our processes, how we organise ourselves around those processes and the systems we use to execute them” McNamara (2011) for Tesco p2

“An operating model is the design of your business that makes it possible to delivery your business strategy and service proposition” OEE Consulting (2017¹)

For the purpose of this paper the definition from SOMS (2017¹) website provides a good summary linking strategy and taking in operational activities. “The operating model is the operational design that makes it possible to deliver the business strategy. It is the blueprint for how an organisation operates across a range of domains to deliver its objectives.” The material for SOMS (Service Operating Model Skills) was developed by a synthesis of academics from the Centre for Service Management at Loughborough University and a workshop of commercial organisations at OEE Consulting’s Service Excellence Conference on 2015. Further material from this workshop such as the features of a poor Operating Model are at SOMS (2017²)

Expanding on this brief definition Table 1 shows a summary of how different organisations represent Operating Model in terms of important elements. The different frameworks of elements reflect the organisation’s different perspective and cross all three sources for definitions of Operating Model – companies, consultancies and academics although the academic sources are not from formal journals as this was not found in the literature. OEE Consulting, EY and Bain are consultancies, Boeing is an Aircraft manufacturer, Campbell et al. publication is derived from executive education at Ashridge and SOMS is a framework derived from a research centre in Service Management at Loughborough University. There are some themes which are common to most of the frameworks and when compared in Table 1 provides insight both in terms of omissions by organisations and additions in terms of elements. So, all the frameworks except Bain have some kind of service proposition and process category. How the management operates is reflected in the management system or framework although this is more narrowly focused by Bain, SOMS and EY into performance management with the addition of accountability for Bain. ‘Organisation’ is mapped here for Boeing in DuPont (2104) as their definition seems quite broad, although it is not well defined in their material it seems to better cover the management system rather than the organisational structure defined by Campbell et al.. There is less agreement about how to subdivide the resources and context is which management and process delivery happens. There is a theme of technology and IT in EY and OEE although for EY it is not a core element Operating Model. Boeing do

not explicitly state IT as their whole brief is coming from an IT perspective it is implicit. Other frameworks include IT as part of a broader definition for example Process Context for SOMS and Information for Campbell et al. (2017).

Table 1: Summary of elements of Operating Models

	OEE Consulting (2017 ²)	Boeing In DuPont (2104)		Campbell et al. (2017) POLISM	Bain in Cooper et al. (2012)	SOMS (2017 ²)	EY (2016) Core other
Core elements of Operating model	Service proposition (SP)	Channels		Value propositions		Customer experience (CE)	service delivery
	Journey and process (J&P)	key activities				Delivery (D)	process
	Management framework (MF)	Organisation		Management system	Key strategic metrics	Performance Management and improvement (PM&I)	performance management,
					Accountability		
	Technology and infrastructure (T&I)	business capabilities	key re-sources	Information	Super-structure	Process context (PC)	IT
	People, culture and organisation (P,C &O)			Organisation			
	Location, function and teams (LF&T)	key partnerships		Suppliers	Behavioural expectations Talent requirements	People capability (PC)	Governance, Org design and structure,
Locations							
Other elements	cost structure				Demand and capacity management (D&CM)	design principles	

Stakeholders in the form of key partnerships are mentioned by DuPont (2014) and partnerships and suppliers by Campell et al. but could be part of other elements such as location, functions and teams for OEE and organisational design for EY. SOMS and Bain explicitly mention an HR element with Bain having a heavy emphasis citing both behavioural expectations and talent requirements. This aspect is also picked up in OEE’s People, culture and organisation. Locations is explicitly mentioned by Campell et al. and is reflected in the global aspects of EY but is not explicitly categorised by other frameworks except OEE where location is part of a larger category - Location, function and teams.

In the ‘other’ section are elements of individual Operations Models frameworks not addressed by any other frameworks. These other elements may be considered as idiosyncrasies of the defining organisation or a serious omission from the other frameworks and so should be individually considered. The inclusion of ‘cost structure’ by Boeing in DuPont (2104) is difficult to explore as their definitions of each of the elements are not provided, but its lack of cost in operations appears to be an omission although for many organisations cost would be covered in key strategic measures. SOMS specifically refers to Demand and Capacity Management and here reflects the focus on service operations where knowing demands can be particularly difficult to manage due to the intangible nature of most service offerings - reflected in a recent publication on public service operations management Radnor, Bateman, Esain, Kumar, and Williams, (2015) in chapters 7, 9 and 21.

It is interesting to note that none of the elements of the Operating Model or the definitions themselves have any explicit reference to manufacturing. Whilst Operating Model as currently defined could be applied to the manufacturing sector it appears that the main drivers for Operating Model are service organisations of the eighteen examples of Operating Model cited in Campbell et al. (2017), all but two were largely or wholly service companies.

Assessing operating Models

The idea of an Operating Model audit has been used by consultancy companies as a starting point for redesign of Operating Models. Generally these are not available for the public for example the “operating model assessment” from PricewaterhouseCoopers referred to by Peretti (2016) is not available and given the potential commercial advantage conferred by this, this is unsurprising. However, Bain in Cooper Dhiri and Root (2012) take two audit approaches one focused around their elements from

Table 1:

“Superstructure- typical questions: Do categories or countries own the P&L, and what shared services are appropriate? Should they be provided by the center or region?

Talent requirements - typical questions: Where do we need general management talent versus functional talent? Will we need different types of talent and skills going forward to achieve our brand goals?

Behavioural expectations - typical questions: Should we shift away from a consensus decision style to speed up decisions and encourage greater accountability? What aspect of our current culture or DNA is key to our success, and how do we enhance it even further?

Key strategic metrics - typical questions: What are the three most important metrics for measuring our success? Is it winning share with a key market segment? Boosting innovation and renewal rates?

Accountability - typical questions: Where in the organization are brand positioning or innovation decisions made? How should we balance the benefits of consistency with local consumer preferences?

Governance forums and management cadence – typical questions: Do we have the right forums and debates so that the big ideas get the resources they need and the right investment trade-offs are made?”

The second is shown in Appendix 1 as a series of questions - not structured around their framework - but they do bring out additional issues identified in their larger paper for example Q6 “*Do you have two or fewer true centers of gravity throughout the organization (i.e., layers of organization with substantial decision-making authority or substantial resources)?*” refers to decisions making being made repeatedly and by Bain’s judgement unnecessarily p 6.

DuPont (2014 for Boeing) has:

1. How well does your current Op Mod support your business strategy?
2. Is the Op Mod flexible and adaptable to business model changes given the market conditions?
3. What level of integration and coordination is required across value streams?
4. Do business capabilities support the business models and competitive position?
5. Where are there opportunities for resource and information sharing?

(numbers inserted for reference purposes)

Questions 3 and 5 are clearly aimed at IT resourcing however reflecting the influential model by Ross (2005). Questions 1, 2 and 4 provide the link between strategy, business model and the Operating Model.

Campbell et al. (2017) in their book provide a list of 27 questions (pp 132-133) under the titles of stakeholders and processes, organisational model, locations, buildings and assets, information and other links, suppliers and business partners, management systems: meetings and KPI's and visualisation and communication thus echoing their framework of POLISM in Table 1. In addition they provide a wide range of diagnostic tools (pp 94-178) for these elements. Some of these are well known in the OM literature for example value chain maps, or wider management literature organisation charts. Campbell et al. in the structure of their book highlight a challenge of granularity for Operating Model diagnostics in that they outline four levels of Operating Model; two are high level and can be expressed in a single page or ten pages and two are detailed to be expressed in 100 pages or 1000 pages. Campbell et al. explicitly rule out covering the latter in their book and it may be judged for many organisations documenting to a 1000 page level is probably unfeasible to remain up to date.

OEE Consulting takes the approach of a conflict matrix shown in Figure 1. Whereby their elements of the Operating Model are audited against the current strategy and then against each of the other elements of the Operating Model to ensure that no major conflicts occur. Major conflicts are identified as opposed to *any* conflicts because the audit is intended as a high level process that can be done in a few hours similar to Campbell et al.'s high level Operating Model. OEE regard the Operating Model is not designed to be perfect, finer tuning towards perfection should take place at a more process level.

DOSO design approach – Conflict Matrix.

Design ensures no conflict between model elements.

OEE Consulting’s conflict matrix is used to test each element of the operating model to ensure that the service proposition can be delivered with less effort than ever before.

	Description	Management framework	People, culture & organisation	Technology & infrastructure	Locations, functions teams	Journey & process	Service proposition
Strategy	What to do Where to play How to win						
Service Proposition	Value to customer Channels	3	1				Change
Journey & Process	Steps, Discretion, Speed, Flexibility		2			Change	
Locations, functions teams	Work organisation				Change		
Technology & Infrastructure &	Self service Fragmentation Duplication			Change			
People, culture & organisation	Key skills Skills mix Roles Structure Culture		Change				
Management framework	KPIs Cap. vs. demand Maintenance	Change					

Description of element design
Proposed changes to design

1
Example
Service proposition may require high discretion diagnostic to be provided for customer. People have been trained to provide low discretion information.

Figure 1: OEE Consulting's conflict matrix

This approach develops that part of the definition of Operating Model from SOMS (2017¹) “The operating model is the operational design that makes it possible to deliver the business strategy.....” in that the conflict matrix makes sure the elements of the Operating Model fit together to allow the delivery of the strategy. This is to ensure the overall design of the Operating Model has suitable internal logic.

It seems likely the best approach for audit from current practice (that is publicly available) is probably a combination of the overarching questions (such as Du Point Q1 How well does your current Op Mod support your business strategy? Or Bains’ Q8 Have your strategy, budgeting and planning processes dynamically aligned talent and financial resources with priority opportunities? Appendix 1) combined with specifically reviewing against the elements of the Operating Model of your organisation. This second element is also best taken at a fairly high level to avoid an overly lengthy review as suggested by OEE’s conflict matrix. This dual approach means that the Operating Model as a whole meets the strategic needs of the organisation whilst the internal logic of the Operating Model also works.

Links to other Operations Management and Management ideas

Given that the concept of Operating Model largely originated outside the Operations Management it is useful to see how well it integrates with existing OM ideas, tools and frameworks in order to see if it merits its place in OM body of work.

Consultancies use many existing tools to support design of the Operating Models including value stream mapping, balanced scorecard, supply chain models p 9 DuPont (2104) value chain map, scorecard, SIPOC. OEE Consulting in their workbooks (not publicly available) for example use SWOT,

Kano model, Pareto charts, SIPOC, and many ideas from TQM and lean. “Our training workbooks are designed to provide a creative framework to diagnose, design and maintain Operating Models. They combine a rigorous technical approach with the pragmatic experience of our consultants in implementing business change with our clients” Jonathan Tidd, Associate Director OEE Consulting.

There are also further links to existing OM ideas such as process hierarchy (Slack, Brandon-Jones, and Johnston 2016) which is reflected in Boeing’s material (DuPont (2104) 2014 p 11) and Bain’s where Cooper et al. (2012) identify four levels of hierarchy; corporate leadership, region, business unit and country. From an operations perspective this omits the two lower levels of focus identified in Slack et al. the operation and the process, engaging only with the higher level supply network. At the global level where Bain is focused, this is appropriate. Bain suggest that decision accountabilities should be limited to two levels only – the basis for this judgement is not explored - but the concept to avoid revisiting decision’s and thus over-debating is a useful one.

An area that is omitted in the Operating Model literature is operations strategy. The link to business strategy is clearly made for example in DuPont (2014 for Boeing) and in definitions of an Op. Mod. But this neglects the concept of operations strategy which is defined by Slack et al. (2009) as “the pattern of decisions and actions that shapes the long-term vision, objectives and capabilities of the operations and its contribution to overall strategy”. Given the similarities between the operations strategy and the Operating Model definitions it seems likely that some of the literature from operations strategy could inform the Operating Model development practice and this in turn could drive and challenge some of the thinking in operations strategy.

The challenge of implementation and maintenance

Much of the consultancy based material is focused on design of Operating Models and there is no doubt for large organisations this is a complex and challenging processes. This is evidenced by the demand for consultancy services in this area and illustrated by the support tools required for example see Campbell et al (2017). However, an additional challenge is implementation and maintenance of the design into the working life of the organisation, in effect making the design real and keeping it relevant. This challenge is termed by Kates and Kesler (2015) as ‘activation’ but nevertheless echoes the implementation and sustain challenges for all operational “grand designs” such as lean, TQM or six sigma. Kates and Kesler (2015) highlight problems typical for implementation and sustaining, such as leaders not knowing how to and not being motivated to work in a matrix – metrics and reward systems not reinforcing enterprise thinking and corporate executive committee continuing to act as a group of individual leaders, each focused on their own business versus the needs of the enterprise. This lacuna in the organisational and consultancy literature is for example reflected in material published by implementers of Operating Models such as DuPont (2104) who highlight analyse, assess, design and implement as stages of applying Operating Models but have no content on maintenance. Although EY (2016) do briefly mention on-going maintenance as an element that is neglected and recommend stewardship responsibility for keeping the model up to date and OEE Consulting (2017²) have a scale and embed phase to address this area.

Conclusions

The idea of an Operating Model has emerged from outside of the Operations Management discipline, responding to a need by organisations to understand how they deliver their strategy at an operational level. This was first identified by Ross (2005) in the area of IT whose work then influenced thinking in the area of Operating Model to have an IT focus. More recently the link between Operating Models to strategy has been strengthened to take on a wider operational remit. This paper has summarised the available literature and brought in an Operations Management view to more fully realise the operational aspects of Operating Models. This analysis revealed that:

1. An area that needs development is the link between operations strategy (from the conventional OM literature) and Operating Model.
2. Many conventional OM tools such as value stream mapping are used as part of Operating Model design thus Operating Model warrants a place in conventional OM thinking.
3. Operating Model seems to particularly address the needs of the service sector as opposed to manufacturing.
4. Current Operating Model frameworks and definitions tend to reflect the commercial sector from which they emerged.

This final finding identifies that a more balanced definition of Operating Model suggested by SOMS (2017¹) “The operating model is the operational design that makes it possible to deliver the business strategy. It is the blueprint for how an organisation operates across a range of domains to deliver its objectives.” could be usefully adopted. In addition the challenge of implementation and maintenance of the Operating Model could be more strongly represented in some definitions.

A review of Operating Model audits suggest that the best approach to an Operating Model audit should be developed using a combination of a few selected over-arching questions, that check the overall approach of the Operating Model with the needs of the business, combined with a check between of the different elements of the Operating Model that appraises its internal logic as, for example, OEE Consulting’s conflict matrix.

Further work

From this review of Operating Model an audit approach has been proposed combining overarching questions and a check for the logic between elements (OEE’s conflict matrix) and a version of this is currently being used at OEE Consulting. Further research could demonstrate how well this audit performs.

Acknowledgements

This work was commissioned and funded by OEE Consulting. Final year students on the Lean Operations module (2017) at Loughborough University undertook an assignment comparing lean operations with Operating Model and their sources of literature provided an invaluable starting point for the literature review – thank you.

About the Author

Dr Nicola Bateman an Associate Professor of Operations Management, School of Business, University of Leicester formerly a deputy director of the Centre for Service Management Loughborough University. She can be contacted on nab34@le.ac.uk

References

- Baker and Narayanan** (2004) Building the Integrated Operating Model Common IT Platform and Processes http://www.prudential.co.uk/~media/Files/P/Prudential-Corp/business-presentations/2004/2004-11-04/part1/operating_model.pdf last accessed 4.8.17
- Campbell, Gutierrez and Lancelott** (2017) *Operating Model Canvas* Van Haren Publishing. 978-94-018-0071-6
- Cooper, D., Dhiri S., and Root J.** (2012) *Winning operating models* Bain & Company <http://www.bain.com/publications/articles/winning-operating-models.aspx> last accessed 4.8.17
- Datta, P. and Roy, R.,** (2011). Operations strategy for the effective delivery of integrated industrial product-service offerings: two exploratory defence industry case studies. *International Journal of Operations & Production Management*, 31(5), pp.579-603.
- DuPont** (2104) *Using Business Architecture to Realize your Operating Model* Boeing <https://c.ymcdn.com/sites/businessarchitectureguild.site-ym.com/resource/collection/31E9670C-D71F-44C0-BF8F-964DF37090E2/basig-14-03-16.pdf> last accessed 4.8.17
- OEE Consulting** (2017¹) <https://www.oeeconsulting.com/our-thinking/how-to-design-your-business-for-success/> last accessed 21.9.17
- OEE Consulting** (2017²) <https://www.oeeconsulting.com/training/public-training/design-of-service-operations-foundation/>
- EY** (2016) *Operating models Delivering on strategy and optimizing processes* EY [http://www.ey.com/Publication/vwLUAssets/Operating-models/\\$FILE/Operating-models.pdf](http://www.ey.com/Publication/vwLUAssets/Operating-models/$FILE/Operating-models.pdf) last accessed 4.8.17
- Garton E** (2017) *Your Organization Wastes Time. Here's How to Fix It.* Harvard Business Review March 13, 2017
- Kates, A. and Kesler, G.,** (2015). Activating Global Operating Models: The bridge from organization design to performance. *Journal of Organization Design*, 4(2), pp.38-47.
- Linder, J and Cantrell S** (2000) *Changing Business Models: Surveying the Landscape* Accenture Institute for Strategic Change <http://course.shufe.edu.cn/jpkc/zhanlue/upfiles/edit/201002/20100224120954.pdf> last accessed 8.8.17
- MacCarthy, B.L., Lewis, M., Voss, C. and Narasimhan, R.,** 2013. The same old methodologies? Perspectives on OM research in the post-lean age. *International Journal of Operations & Production Management*, 33(7), pp.934-956.
- McNamara Mike** (2011) *Deploying the Tesco Operating Model* Tesco https://www.tescopl.com/media/1740/operating_model_updated_-_europe_2011.pdf last accessed 4.8.17
- Monden, Y.,** (2011) *Toyota production system: an integrated approach to just-in-time.* CRC Press.
- OED** (2008) *Concise Oxford English Dictionary.* Oxford University Press
- Peretti J** (2016) *How management consultants are cashing in on austerity* The Guardian Oct 17 <https://www.theguardian.com/business/2016/oct/17/management-consultants-cashing-in-austerity-public-sector-cuts> last accessed 4.8.17
- Radnor, Z, Bateman, N, Esain, A, Kumar, M, Williams, S** (2015) *Public Service Operations Management A Research Handbook*, Routledge, ISBN: 9781138813694.
- Ross, J.,** (2005). Forget strategy: Focus IT on your operating model. *CISR Research Briefing*, 5(3C).
- Silvestro, R. and Lustrato, P.,** (2014). Integrating financial and physical supply chains: the role of banks in enabling supply chain integration. *International journal of operations & production management*, 34(3), pp.298-324.
- Slack, N., Brandon-Jones, A. and Johnston, R.,** (2016) *Operations management.* Pearson. 8th Ed.
- Slack, N., Chambers, S. and Johnston, R.,** (2009). *Operations and process management: principles and practice for strategic impact.* Pearson Education.

SIEPS Society for the Illustration and Encouragement of Practical Science (LONDON) (1838) *Gallery for the Exhibition of Objects blending Instruction with Amusement* By Society for the Illustration and Encouragement of Practical Science London

SOMS (2017¹) <http://www.service-operating-model.co.uk/operating-model-definition/> last accessed 15.8.17

SOMS (2017²) <http://www.service-operating-model.co.uk/communityandpublications/> last accessed 21.9.17

Strategyzer.com (2017) <https://strategyzer.com/platform/resources> last visited 3.8.17

Wild, R., (1979). *Production and operations management: principles and techniques*. Holt Rinehart and Winston .2nd Ed. The first edition was published in 1971 under the title *Techniques of Production Management*, the change of name marking an increasing awareness of the importance of operational aspects.

Zhang, X., Schmidt, L., Schlick, C.M., Reuth, R. and Luczak, H., (2008). A human task-oriented simulation study in autonomous production cells. *International Journal of Production Research*, 46(18), pp.5013-5041.

Appendix 1 Bain in Cooper Dhiri and Root (2012) p. 10

1. Can 100% of your extended leadership team name the same top three sources of value and how your company measures success?
2. Is your top-quartile talent focused on your company's most important priorities?
3. Are country, category and capability structures defined in a way that enables your company to achieve its strategy?
4. Do ways of working across brands and geographies allow winning ideas and innovation to travel across organizational boundaries and be adopted more effectively at a faster rate than they were three years ago?
5. Do you perform your centralized activities better and cheaper—and less distractingly—than they could be performed elsewhere in your organization?
6. Do you have two or fewer true centers of gravity throughout the organization (i.e., layers of organization with substantial decision-making authority or substantial resources)?
7. Do your management forums bring the right people together at the right time to address the most challenging, interdependent opportunities or problems, with minimal bureaucracy?
8. Have your strategy, budgeting and planning processes dynamically aligned talent and financial resources with priority opportunities?
9. Does your company make and execute high-quality critical decisions faster than the competition?
10. Is it clear how the top 20 critical strategic and operational decisions are made in the organization (for example, who makes the decision, and with what input)?
11. Have your company's general and administrative costs as a percentage of revenue decreased in the last three years?
12. Does your company have consistent and effective ways of working together that reflect its culture and produce positive outcomes?

Answer yes to 10+ you're OK 7-9 refresh Op mod, 6 or fewer look at Op mod